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THE SOURCES OF ERROR IN ORGANOTHERAPY AS ILLUSTRATED BY THE PREPARATION AND ADMINISTRATION OF INSULIN*

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During the past two years, our knowledge of organotherapy has been greatly enriched by the discovery of the new antidiabetic hormone, insulin, by F. G. Banting (1) and his associates of the University of Toronto. During the past fourteen months, all of our research activities have been devoted to the preparation and clinical use of this new endocrine substance. We are presenting this paper in the hope that the lessons we have learned in the preparation, the standardization and the use of this new product may point out some of the probable sources of error in this and other types of organotherapy.

All will agree that: (1) an endocrine product should contain the active principle which it is supposed to contain; (2) that methods of standardization should be devised whereby the amount of such active substance may be accurately measured; and (3) that such substances should be administered by

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routes which will insure their absorption in a sufficient degree to produce the desired physiological effects.

Since the discovery of Von Mering and Minkowski that the total extirpation of the pancreas resulted in early, fatal diabetes and the subsequent work which led investigators to believe that the islands of Langerhans elaborated an internal secretion which was either directly or indirectly responsible for the proper carbohydrate metabolism, pancreatic extracts in many forms have been tried. Previous to the work of Banting, no convincing results were obtained. We now know that these failures were probably due to the fact that none of these preparations contained much if any of the active principle now known as insulin. Banting theorized and proved conclusively that this was due to the early, rapid destruction of insulin by the proteolytic enzymes of the acinar cells of the pancreas. He circumvented such action by the ligation of the pancreatic duct in dogs, following which procedure the acinar cells degenerated in from seven to ten weeks. From such degenerated glands, he made small quantities of impure but potent insulin extracts. Collip (2) then worked out the present method of circumventing the action of these destructive enzymes by inhibition and precipitation with alcohol. Such extracts made from adult ox pancreas were also found to be active in diabetic dogs and when a sufficient degree of purity and potency had been obtained, they were tried with convincing results on patients suffering from diabetes.

The production on an economical scale of potent extracts of insulin, however, does not depend entirely upon the circumvention of the action of the proteolytic enzymes, although this must be considered the first essential and great care must be taken in excising the glands as rapidly as possible and chilling them at once to preserve the insulin through the first steps in the process. The glands from recently and well fed animals probably give a higher yield than the glands from poor and previously starved animals. The yield is materially increased by the use of the hydraulic press. In filtering off the precipitated enzymes, much of the insulin may adhere to the precipitate unless the extract is permitted to stand a day or two

before filtration. In certain stages of the removal of the alcohol by vacuum distillation, prolonged heating at moderate temperature is injurious. The hydrogen ion concentration must be watched at all stages. Variations in the hydrogen ion concentration no greater than that between distilled water and tap water spell marked success or partial failure. The process is by no means perfected but by attention to such minor details we have been able to increase our yields many fold.

The Toronto group next devised a method of testing solutions on rabbits enabling them to arrive at comparative degrees of potency. When insulin is given hypodermically or intravenously to rabbits, the blood sugar falls and if the fall is sufficiently great, convulsions occur.

Patents on insulin were applied for and obtained by Dr. Banting and turned over to the University of Toronto. Temporary rights to manufacture a commercial supply of insulin were granted to Eli Lilly and Company of Indianapolis, Indiana, and various research laboratories were permitted to assist in the development of the problem. The Eli Lilly unit is the amount of insulin necessary to produce a convulsion in a one kilogram rabbit in the course of four hours following a subcutaneous injection. In our own experience, such units have a sugar-metabolizing power of a little more than one gram of glucose.

It may not be out of place here to record a word of commendation for the truly scientific endeavors that Eli Lilly and Company have put forth to produce a proven high grade product. For months, and without charge, they furnished large quantities of this precious extract to recognized diabetic clinics, seeking nothing in return except an opinion as to the patient value of their unit. If other manufacturers would exercise the same care, the endocrine problems would be much more rapidly solved.

We know that insulin is efficacious when given subcutaneously and intravenously, but for months we have failed to obtain any effects by alimentary administration. We have given it in coated and uncoated capsules and in various solvents in amounts exceeding twenty-five times the subcutaneous convulsion

dose with no effects on the blood sugar. The problem is still being investigated.

Eli Lilly and Company's Iletin is therefore a potent product of known physiological strength that must be given hypodermically.

There are a large number of pancreatic extracts on the market intended for alimentary administration which are said by the manufacturers to contain a substance or substances of specific value in the treatment of diabetes. The value of these products is not supported by careful scientific investigation but by testimonials from physicians and patients. We have examined three of the best known of these preparations with the following negative results.

Two lots of pancreatic compounds were submitted by the Harrower Laboratories of Glendale, California. Insofar as we could determine, neither of these products contained any of the substance we now know as insulin. Water extracts of these products had no effect on the rabbits' blood sugar when given intravenously, subcutaneously or orally. They did contain proteolytic enzymes which we now know are incompatible with the coexistence of insulin. We promptly reported our results to the Harrower Laboratories but received no reply.

We examined a pancreatic extract furnished by the G. W. Carnrick Laboratories of New York with identical results, and later they sent us some enzyme-free pancreatic extract which was enzyme-free but produced a rise rather than a fall in the blood sugar of rabbits.

At our request, Armour and Company of Chicago sent us a supply of their insulase in capsule form for oral administration which was then (February 19, 1923) being advertised in the Journal of Biological Chemistry and other journals. This product from the similarity of the name to insulin and because of the advertising media used, we expected would contain insulin. As before, insofar as we could determine by similar animal experimentation, these capsules contained no insulin. Twenty capsules in a single dose were taken by one of us on a weighed diet with no effect. These capsules also contained proteolytic enzymes.

THE PRESENT STATUS OF OUR KNOWLEDGE OF THE OTHER ENDOCRINE GLANDS

The Adrenals. The adrenal gland consists of two parts, the cortex and the medulla. Very little is known about the function of the cortex except that it bears some relation to the development of the sex glands originating embryologically from the mesoderm as do the sex glands. The cells are very similar to those of the corpus luteum. In sexual precocity the adrenal cortex is hypertrophied. Tumors of the cortex probably associated with hyperfunction in young children are associated with the premature development of the secondary sexual characteristics. A boy of four or five years may have the sexual development of a mature male. In female children, the breasts hypertrophy, hair appears on the mons veneris, the uterus matures and menstruation may occur. The cortex hypertrophies during pregnancy and after castration. It is ill developed in sexual deficiency. It is believed that it is the cortex and not the medulla which is essential to life since $\frac{7}{8}$ of the gland may be removed provided the portion left is cortex. No proved extracts of the cortex have been made and this important field of organotherapy is open for investigation.

Adrenalin is, in all probability, an extract of the medulla. The active principle of this extract has been isolated in crystalline form by Takamine and Abel. Much of the present commercial supply is made synthetically. Its strength is well standardized. Sansum and Woodyatt (3) have shown that preparations in the large containers such as ounce bottles soon deteriorate after the bottles are opened, so that unless this product is being used in comparatively large quantities, the 1 cc. ampules give the most dependable results. Except on mucous membranes such as the nose and throat, adrenalin is apparently of no value, unless given intravenously or hypodermically. The rôle which adrenalin plays naturally in the body is still a much debated and certainly an unsettled problem.

The Thyroid Gland. Insofar as known, the thyroid gland is anatomically alike throughout. Its active principle, thyroxin, has been isolated by Kendall (4) and its chemistry is known.

This principle, when given by mouth, is a specific in the treatment of hypothyroid conditions. It is a noteworthy fact that thyroxin is the only one of the endocrine products that is surely absorbed by way of the alimentary tract and that in the beginning it was feared that this could not be done. The degree of thyroid deficiency or over-activity may be determined by basal rate determinations. These basal rate determinations also furnish an excellent method of actually determining whether a sufficient dose has been given. The experimental preparation of thyroxin was attended with fully as many difficulties as we are now meeting in the preparation of insulin, and it is well known that many of the typical preparations on the market have very substandard values in proportion to the amount of original gland substance used.

The Parathyroid Gland. Here again, we have an unexplored field. Extirpation of the parathyroid gland is rapidly followed by death associated with tetany. Disease of the parathyroid glands probably associated with hypofunction, results in rapid emaciation, failure of growth, disturbances in the carbohydrate metabolism and, most definite of all, an interference in the calcium metabolism as illustrated by the failure of the teeth and bones to calcify properly. Such conditions have been improved by transplantation of parathyroid tissue from patients who have died. Luckhardt and Goldberg (5) have shown that parathyroidectomized dogs can be kept alive if large amounts of calcium lactate are given by mouth. Also Dragstedt (6) has secured similar results by means of aciduric diets (milk, lactose, etc.), thus causing detoxification. No proved extracts have as yet been made.

The Pituitary Body. The pituitary body consists of two parts, the anterior lobe and the posterior lobe. The pars intermedia is usually included with the posterior lobe. The active principle of the posterior lobe, pituitin, is in some respects similar to adrenalin.

The Anterior Lobe. Extirpation of the whole gland is fatal in two or three days. Here, as in the extirpation of the whole adrenal gland, it is probably the extirpation of the anterior lobe which is injurious to life. Decrease in function of the anterior

lobe is associated with lack of development. The subjects become fat and there is depression in the respiratory exchange. Clinical types were first described by Frölich and are grouped under the term, dystrophia adiposogenitalis. Increased activity is associated with gigantism or acromegalia. An active principle of the anterior lobe called tethelin has recently been isolated by Robertson (7) and is said to accelerate growth in young animals. Similar effects are said to have been produced by the subcutaneous and oral administration of fresh extracts of the whole gland.

Certain manufacturers of glandular products offer as high as $8.00 per pound for pituitary bodies. One of us (S) observed the removal of such glands at the slaughter house. The glands are permitted to lie carelessly about on the heated killing-floors and if the active principle has any similarity to other delicate endocrine products we would assume that the active principle could be easily lost before the first step of the extraction was begun.

Posterior Lobe. Pituitrin is thought to be the extract of the pars intermedia and the posterior lobe. This portion of the pituitary body can be removed with so little functional change that very little can be learned concerning the function of this part by this method.

Pituitrin has an action somewhat like adrenalin. A crystalline form has been obtained but this is thought to be a mixture of various substances.

The Pineal Gland. Very little is known about the pineal gland. When removed in the fowl, the body growth is said to be stimulated and the sexual characteristics develop more quickly. The same conditions occur in tumors and following administration of the gland substances, which makes such results hard to interpret.

The Gonads. The results of castration are well known. These glands are supposed to have a double function, that of the elaboration and secretion of the spermatozoa and secretion of a substance from the interstitial cells. The isolation and study of this internal secretion is another one of the open fields for investigation. We fully believe that such a secretion exists but

the results of the injection of testicular extract on the development of sexual characteristics in different animals is still considered as having a negative value. It may be that such extracts do not contain the active substance they are supposed to contain.

The Female Generative Organs. The results of spaying are well known. They are not so pronounced as the results of castration. The ovary is supposed to have at least a triple function: (1) ovulation, (2) secretion of a substance from the interstitial cells which is supposed to be somewhat similar to the secretion from the interstitial cells of the testicles, and (3) a secretion of a substance from the corpus luteum. Nothing definite as yet has been proven concerning the secretion of the interstitial cells. Extracts of the corpus luteum have been made. This secretion when given intravenously has a pituitrin-like action. The active principle has never been isolated, and there is no definite proof that the impure substance is of any value when given orally. On this point, there is considerable clinical dispute, some clinicians claiming excellent results during the disturbances incident to the menopause, and others claiming just as good results by hygienic measures alone.

The Thymus Gland. The thymus is essentially a lymphatic gland and the proof that it has an internal secretion is entirely wanting.

It seems to us that any experimental work on an endocrine product should begin with the isolation of a substance or substances that have a proved physiological value, that the degree of such potency should be determined and that the route or routes of administration should be proved.

CONCLUSIONS

In this paper we have summed up our experiences in the preparation and administration of probably one of the most important and longest sought for endocrine products of the body. Work on this product must be considered just begun. We have pointed out the difficulties attendant to its extraction, the efforts now being made toward its standardization, and the fact that thus far other than hypodermic or intravenous methods of administration have been failures. We believe that organo-

therapy in general has a wonderful future, but we also realize that its future development will depend not upon empirical, haphazard methods of study but upon the type of study which has led to our present knowledge of such products as adrenalin, thyroxin, pituitrin and insulin.

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THE INSULIN CONTROL OF DIABETES MELLITUS AND ITS COMPLICATIONS*

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The insulin treatment of diabetes mellitus made possible through the discovery of Banting and his associates, including Macleod, Best, Collip and others of the University of Toronto, occupies the center of attention in the medical world today. Joslin writes in a recent article, "The contribution of Banting and Best to the treatment of diabetes is greater than I ever expected to witness." All diabetic specialists, including Allen, Joslin and Woodyatt have incorporated insulin into their treatments and can confirm the original conclusions of the Toronto group that with the use of insulin even the most severe diabetics can be restored to health and strength.

In our discussion of the insulin treatment of diabetes mellitus, it must again be emphasized that it is not a cure for the disease. This fact, however, does not detract from the marvelous importance of insulin. The low calory diets which were formerly used in the treatment of the severe cases are now unnecessary. Under-nutrition to render patients sugar free is no longer in order, for insulin makes possible the consumption of enough carbohydrate to completely metabolize a reasonable amount of protein and sufficient fat to supply the caloric requirements of patients. Infections no longer are the source of great danger to diabetics, and surgery can be done with the assurance that the severe acidosis so often resulting can be readily controlled by intelligent insulin therapy. Finally, patients in severe acidosis and early coma can usually be saved by the use of insulin.

TREATMENT

All diabetics, whether having a mild or a severe case, need the thorough training in the dietetics necessary for insulin treatment. Subjects of mild as well as severe diabetes should be able to prepare a menu and estimate their diets according to

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their tolerances in grams of carbohydrate, protein and fat. If insulin is to be used, this is absolutely necessary. For patients who are unable to compute such a diet a compromise with rigid diets of known food values must be granted. Insulin is necessary for all diabetics whose carbohydrate tolerances do not allow sufficient caloric intakes to keep them strong and well. Small doses of insulin, however, may be of benefit even in mild diabetes, helping to arrest the downward progress of the disease and activating the general metabolism of the body in a manner difficult to explain but evident from a clinical point of view.

Physicians who undertake the insulin treatment of diabetes mellitus must therefore understand the mathematics of dietetics and be able to prescribe diets of a constant carbohydrate, protein and fat content or, better still, be able to teach their patients how to arrange varied diets of constant values. These diets must be balanced in relation to carbohydrate, protein and fat according to the generally accepted ideas concerning ketone destruction. Physicians who use insulin should be able to conduct the various tests commonly used in the study of diabetes, especially that for blood sugar. They should keep in touch with their patients and be able to adjust diets and insulin dosage in case tolerances increase or infections occur. Careful histories, physical examinations and blood sugar determinations should precede all insulin therapy and renal diabetes must be excluded. Finally, foci of infection must be searched for and, if found, should be removed only after the diabetes is under insulin control.

INSULIN ADJUSTMENT

If the diabetic is unable to metabolize a diet sufficient to maintain weight and strength for the occupation he must pursue, insulin should be administered. The dose may be determined in the following way: the available carbohydrate of the required diet can be determined by adding to the grams of carbohydrate in the diet the other sugar formers which, as Woodyatt has emphasized, consist of 59 per cent of the protein and 10 per cent of the fat; the difference between this result and the number of grams of glucose excreted in the 24-hour period gives the natural glucose tolerance for the patient. McPhedran and Banting recently state that one unit of insulin will utilize from

one gram of carbohydrate in the severe cases, to 2.5 grams in the mild cases. It is well to assume the maximum effect when insulin therapy is to be begun, and the 24-hour dose can be estimated by dividing the number of grams of glucose in the 24-hour urine by 2.5. For physicians not accustomed to the use of insulin, even a smaller dose might be advisable, as suggested by Joslin. Further 24-hour glucose determinations indicate the necessity of increase in insulin, or reduction in diet, in order to render the patient sugar free.

We have usually been able to divide the insulin requirement for the 24 hours into two doses, approximately three-fifths being given one-quarter to one-half hour before breakfast and two-fifths at the same time before the evening meal. Slight differences in the relative amounts of insulin given and the time of injections may be necessary. A few patients require a small noon dose, though with a large morning injection the blood sugar is usually low enough at noon to allow the ingestion of a meal without insulin. The evening dose must not be so large that the blood sugar is depressed during the night with insulin reactions developing during sleep. It is important, moreover, to vary the site of injection. Several irregular actions of insulin in our experience were found to be due to its irregular absorption, resulting from the continual injection of the extract in the arms. Moderate tissue irritation at times occurs in our patients, but no infection has resulted in over ten thousand injections to date. Mild urticaria at the site of injection or more general urticaria occasionally appears within one to two weeks after the first hypodermics. Calcium lactate has been given to such patients with relief.

During the period of desugarization by insulin, frequent examinations of single specimens of urine should be made, especially if full doses of insulin are being administered. When a few grams of sugar persist in the 24-hour specimen, examination of single specimens will show when the sugar is being excreted, and insulin can be increased in the dose preceding such glycosuria. The possibility of a residual urine or retention of urine in semi-comatose or completely comatose patients must be remembered. In such cases frequent catheterized specimens, only, can reveal the true analysis of the urine. Thus for accurate work, frequent blood sugar determinations are desirable while

the patient is becoming sugar free and during the period of insulin adjustment.

Whether it is advisable to allow a slight hyperglycemia during insulin treatment is a question. Hypoglycemia is certainly to be avoided. Personally, however, it seems to me better to maintain a normal or even slightly elevated blood sugar to obviate any insidious effects from long continued hyperglycemia and to make the patient as normal as possible.

During the first few weeks after the patient is sugar free a rapid increase in natural tolerance may occur, indicated by the lowering in the blood sugar level or by insulin reactions. In such cases insulin must be decreased or even stopped for a dose or two and the diet raised until a constant equilibrium between diet and insulin is reached.

DIET ADJUSTMENT

The proper balancing of the carbohydrate, protein and fat in the diet must be discussed. My own experience confirms the opinion of Newburgh and Marsh in regard to the use of high fat diets. These diets are still necessary in many severe diabetics in order to be economical with insulin and to give enough calories for activity. I feel that it is desirable but unnecessary to keep the ratio of fatty acid formers, that is, 46 per cent of the protein plus 9 per cent of the fat to the glucose formers; that is, 100 per cent of the carbohydrate plus 58 per cent of the protein plus 10 per cent of the fat, below 1.5 or even 2, as Wilder suggests. The work of Shaffer, especially, makes these ratios appear too conservative. We agree with Joslin in feeling fortunate not to have invented a diet formula and to be able to take the best from all systems. Thus in regard to protein, we plan to give about one gram of protein for each kilogram of the normal weight of the patient. This amount has been shown to assure a positive nitrogen balance, and is not so large that an excess of acid formers and too much specific dynamic action on the basal metabolism results. From one and a half to three times as many grams of fat as available carbohydrate are added to the diet, according to the caloric requirements of the patient. The total calories are thus increased so as to maintain or attain a normal weight. Boothby and Wilder have shown that for ordinary activity 20 to 30 per cent more calories than the basal requirement are necessary.

CLINICAL EXPERIENCE

In order to illustrate the above method of instituting insulin therapy, the data on a severe diabetic recently treated with insulin is given in Table I. D. L. was first seen by me one and a half years ago, two weeks after the sudden onset of diabetes. In spite of urgent advice, treatment was not continued. Lately,

TABLE 1

Date	Diet			Available G	Urinary G	Nat'l G Tolerance	Urinary		Blood		Gms. of G Equiv. to 1 H	Insulin (Lilly)	Remarks
	C	P	F				NH^3	Diacetic	CO^2 Vol. %	Blood Sugar			
May 22	45	75	150	103	130	−27	7.4	+++	37	.435		0	Drowsy, weak, boil on arm.
23	45	75	150	103	99	+4	5.3	+++				0	
24	45	75	150	103	29		4.8	+++	48		1.8	40 H	
25	45	75	150	103	21		4.7	+++			2.0	40 H	
28	45	75	150	103	12		2.9	++			1.8	50 H	
29	39	75	150	97	8		2.5	++	56		1.8	50 H	
30	39	75	150	97	7			+				50 H	
June 1	33	75	150	91	2			0			1.8	50 H	
2	33	75	150	91	0			0				50 H	
3	33	75	150	91	0			0				50 H	Slight insulin reaction.
4	36	75	150	94	0	12	1.3	0				49 H	Slight insulin reaction, 6 gm. of sugar taken.
5	42	75	150	100	0	25		0		.164		45 H	Slight insulin reaction, 6 gm. of sugar taken.
6	42	75	180	103	0	38		0				37 H	Slight insulin reaction, 6 gm. of sugar taken.
7	42	75	180	103	0	50		0				35 H	Marked reaction, 10 gms. G.
8	45	75	180	106	0	54		0				32 H	Slight reaction, 6 gms. G.
9	48	75	180	109	0	57		0				32 H	Slight reaction, 6 gms. G.
10	54	75	180	115	0	57		0				32 H	No reaction.
11	54	75	180	115	0	57		0		.151		32 H	Feels well and strong.

D. L., aged 28, weight 180, height 5 ft. 9 in. Diabetes of two years. Gradual increase to extreme severity shown above with marked acidosis. Aggravated by large boil. Glycosuria, hyperglacæmia and acidosis controlled by insulin alone.

he had been weak, drowsy and irritable, and a severe boil had developed on his arm, which had aggravated his diabetes. From his clinical condition and the data presented it is evident he was approaching coma.

In spite of severe acidosis he was placed on a low maintenance diet of 1800 calories at the start. Fat was not reduced and insulin was given immediately. Assuming that one unit of insulin (Lilly) would metabolize a maximum of 2.5 grams of carbohydrate, 40 units (H) were ordered during the first day of insulin therapy. It was found, however, that only 1.8 grams of carbohydrate were taken care of by each unit of insulin. This result was confirmed on several successive days, and may be accepted as this patient's carbohydrate equivalent for one unit. He gradually became sugar and acid free, and his sense of well being and normal mental reactions rapidly returned. After becoming sugar free, his natural tolerance increased so that within three weeks it had risen from 0 to around 60 grams of glucose formers.

The data on Miss A. F. are given in Table II to indicate a more rapid method of handling severe cases of diabetes. This girl was extremely weak and drowsy, and I wished to get her acid and sugar free quickly. The first dose of insulin of 10 H was given at 4 P. M. and in 2 hours this dose was repeated and some oatmeal gruel was given. Water was forced by mouth and frequent urinalyses were made. By 9 P. M. the urine was both acid and sugar free. The blood sugar was immediately analyzed and because of its normal value and the possibility that the insulin was still lowering the blood sugar level, 60 cc. of orange juice was prescribed. The patient was watched carefully during the night and no insulin reaction occurred. One unit of insulin was ordered for about every two grams of available carbohydrate in the diet for the following day. The diet was rapidly increased and the insulin decreased according to clinical indications and blood sugar determinations. A splendid gain in weight and strength took place within three weeks time.

Insulin has been administered to seventy-five patients exclusive of those in coma during the last seven months in our clinic. Twenty-seven of this number have been placed on 20 to 45 units daily and forty-seven are taking from 3 to 20 units a day. Six patients are in the first decade, four in the second,

four in the third, seventeen are between the ages of thirty and fifty, and forty-four between the ages of fifty and eighty-five. Most patients are having insulin administered at home, either by themselves or by some person in the household. There has been a universal improvement in the clinical conditions in all patients, most marked in the children and young adults and less so in a few of the patients over sixty. Weight has increased

TABLE 2

Date	Diet				Insulin	Urinary			Blood	Weight	Remarks
	Cha.	Prot.	Fat	Cal. Per Kg.		Sugar	Diacetic	NH^3	Sugar		
Mar. 31	Mod. Bre	limita akfast	tion fo and l	r unch	20 H	2.6	+++	3.0		89	Weak, nervous, depressed, droway.
P.M. 4:15	Treat	ment	begun		10 H	+++	+++		.277		Green vegetables and meat for 2 weeks.
6:00	10	2.5	1		10 H	++	++				Restricted diet for 3 months.
7:00						+	+				
9:00	6	(Oran	ge juic	e)		0	0		.122		
April 1	40	43	57	21	32 H	0	0	1.2	.077		No insulin reaction.
2	45	45	75	25	30 H	0	0	1.3	.112		Sitting up in chair, stronger.
7	45	60	150	43	22 H	0	0		.165	91	Left hospital, walking.
14	45	60	150	39	22 H	0	0			100	Feels perfectly well.
23	45	60	150	37	22 H	0	0		.154	104.5	Feels stronger than for months.

Miss A. F., diabetes of 10 months duration. Acute onset, loss of 30 lbs. in weight. Age 18 years.

in nearly every case, in one instance amounting to fifty pounds. Complications such as neuritis, neuralgia, paresthesias and retinitis have in most instances improved under persistent therapy.

INFECTIONS

It is important that simple food, containing the usual number of grams of carbohydrate, protein and fat, be taken along with insulin during infections. Diabetics must continue to be fed during these periods and as the glucose tolerance usually diminishes, insulin must frequently be given in larger doses than

usual. This increase in dose can be determined by quantitative glucose determinations in the 24 hour urine. If the calorie intake is reduced insulin may also be cut down as determined by urinary and blood examinations. If nausea or indigestion occur an emetic should be given and the bowels emptied by castor oil, after which simple carbohydrate, protein and fat mixtures should be prescribed as soon as the stomach will tolerate them. If for any reason it is impossible to give food by mouth, 10% glucose by vein will make possible the continuance of insulin therapy and thus prevent the onset of a severe acidosis. Subjects having only a mild form of diabetes who usually do not need insulin will often require it during infections. We have seen erysipelas, carbuncles, boils, sinusitis, pneumonia, phlebitis, appendiceal abscesses as well as other infections follow a normal course to complete recovery under insulin treatment.

SURGERY

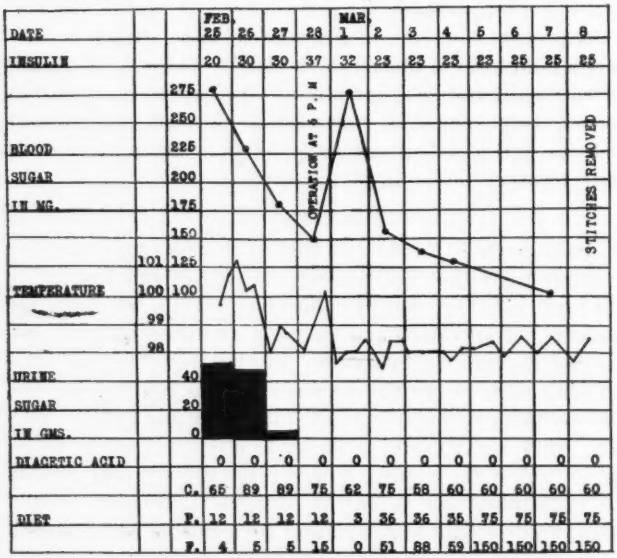
Murphy wrote, "No class of patients is more prone to surgical complications, has less tendency to recover and less resistance to toxic infection than the diabetic." Very few diabetics can undergo an operation and escape a resulting acidosis and a period of decrease in tolerance. Insulin, however, can take care of both of these serious results and as a consequence the surgical mortality in diabetics in the future is going to be greatly reduced. However, no surgery should be attempted except in an emergency unless the patient is under the dietary and insulin control of a physician skilled in diabetic treatment. After operation, fluids should be forced and 10% glucose administered by vein in proper amounts as long as food is withheld by mouth. Insulin must be continued and the dose carefully controlled by blood and urine analyses.

During the last few months we have controlled the postoperative period with diet and insulin in the following surgical conditions: three high amputations of the leg because of gangrene of the foot, one amputation of a toe due to gangrene, two carbuncles, two ruptured gangrenous appendices, one thyroidectomy, and one extensively infected hand following amputation of an infected finger. There has been only one death and that in an amputation in a woman of seventy-six years, whose incision healed perfectly in ten days and who died two weeks

after operation, of a general physical and mental failure associated with her age.

Chart III shows the rapid control of diabetes in a man of seventy-six with gangrene of the foot who suddenly developed a gas infection in his leg and who after an emergency operation was immediately free from all pain and fever and made a rapid recovery in ten days time.

CHART 3



DR. O. L. AGE 76. DIABETES OF 20 YEARS. GANGRENE OF 2 MONTHS. RAPID EXTENSION FOLLOWING AMPUTATION OF TOE WHEN PATIENT WAS NOT SUGAR FREE. EMERGENCY HIGH AMPUTATION BECAUSE OF SUDDEN GAS BACILLUS INFECTION. NO PAIN OR TEMPERATURE.

COMA

Theoretically coma should not occur, especially since we now have insulin. But as long as patients refuse to let reputable physicians treat diabetes, and until the physicians at large realize the importance of recognizing the severe acidosis preceding coma, the actual treatment of this condition will confront the medical profession.

Quick action in the early stages of coma before permanent damage has been done to the vital organs will, with the use of insulin usually save the patient. The general measures emphasized by Joslin such as forcing fluids, keeping the patient warm, washing the stomach of undigested food and the use of stimulants, if necessary, should be carried out. Joslin recently states that as a general rule ten units of insulin every hour for two to four doses and then every other hour for four doses, if necessary, should be given. Certain cases require as much as 100 or more units a day for two or three days, especially if carbohydrate is being administered either by vein or mouth. Recent articles of Foster and Majors report such large doses being necessary in two successfully treated subjects and we have had two subjects in coma that have recovered and that have required similar amounts. These doses consume large quantities of endogenous glucose and thus make possible the burning of the excessive ketones in the tissues.

The treatment must be controlled by blood sugar and urinary sugar determinations. Normal blood sugars are not immediately desirable, though definite lowering is necessary to be sure that ketones are being eradicated.

Three subjects who suffered from diabetic coma and were treated by us with insulin and the general measures outlined above are alive and well today. Two others were completely relieved of their acidosis and died two weeks later, one from a subdiaphragmatic abscess, and the other from a pulmonary embolus. One baby of eight months was brought out of a coma but died of pneumonia within twenty-four hours. One woman of fifty died at the end of forty-eight hours of pneumonia, anuria, and with a blood pressure which persisted around 70 mm. from the beginning of the treatment. One man died within four hours of a ruptured gall bladder. One man of sixty-eight died of a myocardial failure twenty-four hours after he was free from sugar and diacetic acid in the urine and his CO_2 tension had risen to normal.

From our experience in the treatment of coma, therefore, we feel it is most important to prevent the onset of this serious condition and to begin treatment in the early stages of coma if good results are to be obtained.

SUMMARY

The use of insulin is indicated in the treatment of all diabetics who cannot metabolize a diet sufficient to maintain their weights and normal strength. An intimate knowledge of the dietetics of diabetes is important for all diabetics and especially for those taking *insulin*. Every patient must be kept aglycosuric and preferably free from *hyperglycemia*. A practical method of establishing insulin therapy is *outlined* and precautions necessary in its use are *discussed*. The outlook for diabetics who are skilfully treated with insulin and diet during such complications as infection or early coma and when surgery is necessary should be very *favorable* in the *future*.

DISCUSSION OF PAPERS BY DRS. SANSUM AND BLATHERWICK AND DR. ROWE

Dr. Solomon Solis-Cohen, Philadelphia: I consider the paper of Dr. Sansum one of the most valuable contributions that has been made of general suggestions for the use of the secretions as therapeutic agents. Notwithstanding a very long experience with their empirical use and the attempt to formulate rules that might guide me in their administration, I am convinced that the subject is just as Dr. Sansum has said, still in want of a great deal of scientific elucidation, and that while it does not become our duty to abandon the empiric use of organic products, it does behoove us to be very careful in any recommendations that we may make or any conclusions we may formulate and keep to ourselves. The parathyroid gland, for example, is one of those which Dr. Sansum has pointed out as still in want of very considerable study, and no active principle has been extracted therefrom. Nevertheless, one may attempt to use desiccated parathyroid, as many of us have done, and sometimes he will get the result he thinks he ought to have, and very often he will not. The question of failure in the anticipated therapeutic result is three-fold. First, do we actually get parathyroid gland? Second, do we get a parathyroid gland which has been properly prepared? Dr. Sansum has told us what happens to the pituitary. And third, do we get a parathyroid gland, even if properly prepared, which still contains in an active form that substance upon which its physiologic and therapeutic activity depends? I am very much inclined to think that if one has been careful in his therapeutic diagnosis before prescribing the parathyroid gland, the failure is in the product rather than in the intention of the prescriber; but it is a failure nevertheless.

When we do not get failures with parathyroid glands, there is one action which I think ought to be studied much more than any one individual can study it, and that is in the control of certain of the nervous phenomena, and especially those which are expressed in the tremors, not only of the hands, but of other muscles, in exophthalmic goiter.

I have also thought it was useful as an addition to calcium bromide and atropin in the treatment of pyloric spasm in adults, and especially in children. I say I have thought; I do not know. I

know that I have done no harm with it, and I am inclined trying to go on doing some good with it until the laboratories shall give us a refined product to take the place of that we now get in the market.

I think the warning that has been sounded that we must be sure of the product that we get and that we must be sure that it will be absorbed unchanged, or at all events undamaged by the particular route of administration, is highly important. This raises another question. We have been told that the enzymes of the pancreas destroy insulin; but we also know that in the test tubes the digestive enzymes destroy the glucoside of digitalis, and yet we give digitalis by the stomach and we think we get digitalis results. I am not advocating the use of insulin by the stomach; I am using it hypodermically, but it is not at all impossible that some products of the pancreas may eventually be developed which will be capable of use by the gastro-enteric tract, and that will be a great advance.

In regard to insulin: when Banting presented his paper at the Association of American Physicians, I hailed it then as an epoch making discovery, and I do not think the language need at all be altered with the progress of experience. I want to add my thanks to that of Dr. Sansum and the rest to the firm of Eli Lilly & Co., who were very generous in supplying the material for preliminary study of insulin. I am personally very much in their debt for that courtesy.

As to the amount of insulin that is to be used and as to the final effects of insulin, I think there is room for considerable hesitancy in expressing a definite opinion. I am inclined to be much more hopeful today than I was a year ago concerning the ultimate result of the use of insulin in diabetic patients. What I mean may be illustrated by a patient that I saw just before leaving Philadelphia. In the beginning that patient required 40 units of insulin per day to control his glycosuria and his blood sugar within what we considered the reasonable limits upon what I thought to be a necessary diet. After three months of treatment, this subject uses only 5 units a day.

I think we know that the islands of Langerhans are among those structures which are capable of reproduction. We know that the repair and redevelopment of various tissues is not confined to the vegetable kingdom nor to the lower animals, but cell regeneration occurs in man, and I believe that the islands of Langerhans undergo regeneration under rest just as they undergo degeneration under excessive load; and certainly the administration of insulin, if continued under proper conditions, for a sufficiently long time, and if at the same time the patient is properly nourished, will lead to regeneration so that the patient will thereafter furnish his own insulin, as he did at the beginning.

It was my good fortune to have been trained in medicine by the greatest of American physicians since Benjamin Rush, namely, Jacob Mendez da Costa, of Philadelphia. When I heard Dr. Wood and others at meetings in our modern scientific societies bring forth the administration of fat to diabetics as a modern improvement, I could not help thinking of da Costa's words: "When you take away sugar, you have to give fat. The patient has to have something to burn to keep his engine going." You do not feed a diabetic patient or a normal man with calories, you do not feed him with proteins, you do not feed him with carbohydrates nor with fats; you feed him with food. You must analyze the food in order to determine what food is good for the patients in general, or for that particular individual, but what the man wants to know is, "How much rice can I have?" or "How many potatoes?" or "How much bread?" and unless we learn

to estimate our calories and our proteins and our carbohydrates and our fats in terms of articles of diet we will make just as gross an error as does the physician who refuses to estimate his articles of diet in terms of their scientific units.

Anyone who has had much experience with hospitals and in consulting practice will find that there is a type of mind which prefers to turn to a book and get something from the printed page rather than to think it out for himself, and I want in this connection to sound further word of warning. Dr. Joslin and Dr. Allen have published splendid books; we cannot do better than study them, but we cannot do anything worse for our patients than to order Table No. 1 of Joslin or Table No. 12 of Allen, or any other number in any other book. We have to do our own thinking along our own lines and help out our patients by prescribing a diet which he will understand, and the scientific diet for which we will have ourselves estimated.

Dr. N. W. Janney, Los Angeles: In a general meeting of this kind it seems well to emphasize what is, of course, known to the diabetic specialist with great clarity, namely, that an exact dietetic restriction for the diabetic patient is absolutely necessary in connection with the proper use of insulin. We should also bear in mind the matter of under-nutrition. If a patient is found who cannot live comfortably on a scientifically prepared diet, the insulin will permit the use of additional food, hence the practice of under-nutrition can be permanently discarded.

One of the most important aids afforded by insulin is that it has permitted us to simplify the rather severe technique of the diabetic diet. At present I am using but two diabetic diets, one a high carbohydrate diet for combatting acidosis or a precomatose condition; and then afterwards, when, with the aid of insulin, the acidosis has been cleared, which usually takes two or three days at most, I am in the habit of using the Woodyatt diet, generally adopted and proved to clear up acidosis; then, after waiting a little longer, we can tell whether that subject has to use insulin permanently. I think it inadvisable to plunge too precipitately into the use of large doses of insulin. Toxic effects have often been observed in the first few days of treatment when the tolerance has not been known. I rather think it best to put the patient on a rest diet and see what the tolerance is. A few days of waiting—the patient perhaps has had no adequate treatment for diabetes for many years—will not hurt him.

I do not entirely agree with Dr. Rowe in giving the high fat diet. It seems to me that in giving the high increase of calories for the comfort which can be obtained, we do not need necessarily go to the extreme diet, such as advocated by Newberg and Marsh some two years ago. I have yet to see the diabetic that likes to take a high fat diet. I think, therefore, that it is wiser to use a larger dose of insulin, now that it is getting cheaper, and select a diet such as Woodyatt's, which is a very comfortable living diet.

Dr. Walter Timme, New York: One of the important complications in the administration of insulin is the lowering of the blood sugar to a point at which we have a critical low stage, with the possibility of convulsions. A corrollary to that is of extreme interest, namely, that certain types of epilepsy—the type that occurs in the early morning with blood pressure and pulse pressure extremely low—if examined closely will be found to have an exceedingly low blood sugar content previous to the epileptic seizure; and from what we have learned of the administration of insulin we are, some of us,

adopting the modes of relief for that type of convulsive seizure in this type of epilepsy, namely, the administration of such things as will provoke stimulation of the sympathetic nervous system, and we give alcohol or coffee, among other things, and glucose. Coffee and alcohol are the two things above all others that heretofore we deprived our epileptics from taking as inducive to attacks; and now the pendulum has swung the other way and we are beginning to get good results, and particularly in epilepsy of this type, by the proper administration of coffee and alcohol.

I should like to have a few moments to discuss Dr. Sansum's statements. We should all like very much to have the active principles of pituitary, parathyroid and the other glands standardized, so that we might know just how much we are using. I wonder whether we are expected to wait until our investigations reach maturity before we use any of the products which now have been put at our command? I do not like the juxtaposition of the terms empirical and haphazard. They do not necessarily belong together at all. You can be haphazard even in a physiological laboratory, curious as it may seem, and I know of a great many empiricists who are quite the other. So I say we should make use of what we have in an empirical way, not haphazard, and determine whether we get results. Whether those results are at all comparative in case after case is a question that may be difficult of solution, of course.

That brings me to the statement made that the only substance that we know of which has an effect upon human economy when given by mouth is thyroxin. That statement was once made at a medical meeting in which very many prominent physiologists were present, and a speaker at that time invited any one of them to take an ounce of adrenalin chloride (1-1000 solution) and swallow it then and there. If it had absolutely no effect there should be no reason for not taking it that way. None accepted the invitation. As a matter of fact, you do not need to experiment on animals or on any other human being than yourself. When you get a chance, take a little adrenalin by mouth and see if you get any effect on yourself, or take a little pituitary substance into a stomach which has no food in it for two or three doses or for two or three days and see whether it has any result upon yourself. You do not need to read a textbook; you do not need to go into the physiological laboratory; you do not need to measure the blood pressure or pulse rate of the animal that has received it. There are certain things our instruments, good as they are, do not measure. There never was an instrument invented that took the place of brains, and so I say that if you think none of these substances is at all assimilable or produces any effect when given by mouth, please try it on yourself.

Parathyroidectomy used to be followed by death with convulsive seizures, and it was thought that this was due to an absence of the parathyroid; later, we found that parathyroidectomized dogs, when given intravenously calcium chloride did not die and they did not get tetanus. Carlson goes further and finds in his laboratory that you can parathyroidectomize animals without giving calcium at all, but simply refrain from giving them a protein diet, keeping them perfectly quiet, and they survive the operation and apparently are none the worse for it.

Dr. J. B. Collip, Edmonton, Canada: It is gratifying to those of us associated in the development of insulin to see, in a little over a year since the first clinical trial was made, that the hormone has been used successfully in the treatment of diabetic patients practically the whole country over and in other countries as well. There is very

little I can add to the remarks which have been made, other than to say that it is quite evident that the speakers have been doing most excellent work in developing insulin therapy.

Very early in my work on insulin I conceived the idea that there would possibly be some fundamental similarity between sugar storage in the form of starch in a plant and sugar storage in the form of glycogen in the animal; between sugar combustion in the animal and sugar combustion in a plant; and because yeast contains sometimes as high as 30 per cent of glycogen, I undertook to apply somewhat the insulin technique to various types of yeast. After about nine months of failure, I prepared an extract from yeast on January 25th of this year, which produced hypoglycemia of a marked degree. The effect did not, however, develop until something like twenty-four hours after the extract was given. I was quite gratified with this result and proceeded to make extracts from various other plant tissue. I first chose a plant which contained no glycogen and no starch, namely, the common onion. I found that extracts from onion tops or roots produced the same effect as yeast, namely, a fall in blood sugar concentration when injected into animals. Now, I should not want to suggest that because one can produce a lowering of blood sugar of normal animals by the injection of plant extracts that these extracts contain insulin, or even an insulin-like substance. I am only prepared at present to say that there is a certain parallelism between the physiological effect of certain plant extracts and certain pancreatic extracts.

Very recently, I have found that the blood of a rabbit in profound hypoglycemia following the injection of a plant extract will produce hypoglycemia in a second rabbit, the blood of a second rabbit will produce a similar effect in a third, and so on, apparently to an unlimited extent. I am not prepared at present to state the possible significance of these observations. Intensive work along these lines will be pursued, however, in order to elucidate this very interesting phenomenon.

Dr. Arthur D. Dunn, Omaha: I wish to emphasize two points already made. First, insulin therapy in its present status does not displace but enhances dietetic therapy. The thorough grounding of the patient in the dietetics of his disease is fundamental and as important as it ever was. It is an unpleasant type of life that must depend for its existence on the daily use of a hypodermic. If the patient's diet can be so adjusted that he can obtain from a balanced diet the requisite number of calories to earn a living without abnormal depreciation of his machine, it is better for him to live without insulin than with. Second, I wish to emphasize the variation of the potency of insulin in our experience. Recently we have had a patient who received 45 units of insulin daily to absorb a spill of 30 grams of glucose daily.

The use of insulin in our limited experience in surgical interventions has been of extreme value. By the use of insulin it seems we can do with impunity certain things we could not do before. One interesting experience was with an obese subject with a rather mild type of diabetes. This patient weighed 240 pounds; he had a total glucose tolerance of about 140 grams. Prostatectomy was performed; the operation was difficult, and was followed in twenty-four hours by symptoms of acute dilatation of the stomach. A stomach tube was passed, although the distention was little, and a hemorrhagic fluid was obtained from the stomach. I am certain that this man did not have an ulcer. Now, during the following five days no food could be taken. If 800 cc. of fluid were ingested during twelve hours he would

give back through the stomach tube anywhere from 1000 to 1200 cc. There was little fluid passing the pylorus. At the end of five days his urinary glucose output per diem was 13 grams; his blood sugar was 320 milligrams per 100 cc. At this time he was put on 80 grams of glucose with 40 units of insulin; at the end of the sixth day he desugarized with a blood sugar of 160 milligrams. I feel that the insulin was of crucial importance in the handling of this case.

Dr. A. L. Walters, Eli Lilly & Co., Indianapolis: I have been associated in the commercial manufacture of iletin or insulin during the past year, and I think it is incumbent on me to answer Dr. Sansum's question regarding the standardization of the unit. The original unit was the amount of insulin required to lower the blood sugar of a 2 kilogram rabbit to a point where the rabbit showed convulsions. At that early stage it was thought that such a unit would be too large for clinical application and it was therefore decided that a smaller unit should be adopted which was defined as the amount which would lower the blood sugar of a 1 kilogram rabbit to .045 per cent of sugar and produce convulsions. Working with a large number of rabbits, however, it was soon found that 1 kilogram rabbits did not give as constant results as the heavier animals. Therefore, we began using the larger animals, so that the standard rabbit used at the present time weighs in the neighborhood of 2 kilograms.

Contrary to what Dr. Sansum has found, the convulsive dose does not vary in direct proportion to the weight. It does vary as the square of the weight almost mathematically, as shown by a very large series of tests. A 2 kilogram rabbit will require four times as much as a 1 kilogram rabbit. The very early pancreatic extracts made were not stable. That was one of the problems that had to be solved—to make a preparation that would be stable. Therefore, in the earlier preparations to compensate for loss by deterioration, a slight excess was added over the amount stated on the lable, so one unit was really a little stronger than its definition would indicate. When it became time to put this preparation generally on the market, the whole subject was gone over and the definition now adopted does not in any way change the strength of the preparation; and the present unit is defined as one-third the amount required to produce lowering in blood sugar of a 2 kilogram rabbit to the convulsive stage. The strength has not been changed.

Each batch is tested and it is tested on not less than one hundred rabbits, and sometimes four or five hundred, and subsequently each lot is tested in at least six different clinics, and sometimes eleven. These clinics report back their clinical tests and we feel that the strength of the preparation does not vary more than other products tested biologically.

Dr. O. M. Gilbert, Boulder: There is one other field that seems to be opened up in this respect and that is the utilization of glucose intravenously. In the present conditions we are now fearful of it. That comes strongly to my mind from recollection of a patient treated within the past year, a case of nephritis in which the vomiting was so persistent that we were able to sustain the subject only by the intravenous use of glucose. Upon administration of 500 cc. of 15 per cent solution, 75 grams of glucose, there was no glycosuria and no elevation of the blood sugar, but we found that with 600 cc., to which we tried to increase it, the sugar overflow occurred in the urine and rose to 0.2 in the blood. We were able to sustain this subject for some little time, until he gradually developed intolerance

to sugar—he began constantly to excrete sugar, and finally upon the cessation of the intravenous use of glucose he continued to excrete sugar for four days. This meant to us, of course, that his islands of Langerhans had been stimulated and overworked until they had, so to speak, taken on the habit of "working overtime" and went on doing it.

It appears to me that with the use of insulin so the man could have metabolized that sugar, which was perhaps aggravating his kidney condition, we might have tided him through.

Dr. Wm. Engelbach, St. Louis: We are frequently told that organotherapy is more or less empirical and given in most cases without result. I take it for granted that reference is made to results observed by the physiologist upon animals in the laboratory. But even in clinical circles there is great difference of opinion and contention with regard to the effects of ductless gland therapy. I think that results depend greatly upon a number of factors that we have not quite appreciated.

In the first place, in addition to the *questionable potency* of the various products used, there is no doubt that we are making diagnoses entirely too late in a great many ductless gland disorders to obtain good results. We begin to treat cases six to ten years after a gland has been out of function and expect results from the administration of a known hormone. Then, second, I feel sure from our own personal experience that our diagnoses have been incomplete. I know we have treated pluriglandular diseases for uniglandular disorders; for instance, treating a thyro-pituitary syndrome for a simple hypothyroidism, giving thyroid instead of thyro-pituitary substitution therapy. And, third, I believe that we are not treating subjects at the most opportune age. There are certain ages in glandular disorders at which time, if treatment is instituted, favorable reactions are produced; whereas, if the same patient or the same disorder is treated at another age, the treatment is of little avail. For instance, hypogonadism, when treated just before the stage of maturity, offers very much better results than when treated at the age of twenty-five.

As a general rule, those who have considerable experience with the use of these glandular preparations are not over-enthusiastic about the oral administration of a great many of them. We must also admit that the older the subject and the more glands there are involved in one syndrome, the less likely we are to get results with any sort of treatment. Another source of poor results can be traced to mistakes in diagnosis, illustrated in the treatment of amenorrhea or dysmenorrhea. If we are able to make a proper diagnosis of the cause of amenorrhea or dysmenorrhea, better response to treatment will occur. Corpus luteum, so commonly employed, will not cure menstrual disorders due to thyroid or pituitary deficiency.

There are many definite positive observations in the clinical study of the human endocrine organs that I believe the laboratory cannot duplicate in animal experimentation. They are making experiments on a group of animals concerning whose ductless gland function comparatively little is known. They are not sure that they are not dealing with hyperpituitarism or hypergonadism in certain animals at a certain age, which estimation I believe can be made in the human being by the clinician. Again, there are some measurable results in the human subjects which cannot ever be estimated in animals; for instance, the change in adiposity as the removal of the girdle adiposity with pituitrin. The effects upon the mental, menstrual, and osseous development and function are other striking examples. A careful roentgen estimation of osseous development at various ages

proves that all these glands have decided influence upon the skeletal growth. The latter is demonstrated by the effect of ductless gland treatment upon the appearance of the nuclei of certain bones and the fusion of epiphyses in positive endocrine disorders. I believe that these clinical observations are just as scientific, exact, and convincing as the experiments of the physiologist. What we need is more discriminating, discerning clinical studies along the line of the positive therapeutic effects of these interesting disorders of the internal secretions.

Dr. A. H. Rowe, Oakland, Calif.: I feel that we are very fortunate to have had a word from Dr. Collip today. We all know what a definite part he has played in the development of the insulin problem, and I think also that we are privileged to have had a word from Dr. Walters, because without question on his effort has depended a great deal the efficiency of the development of the problem and the manufacture of insulin by Eli Lilly & Co.

I chose definitely to include the word "complications" in my topic today because I feel that it is not only in the treatment of severe cases that were heretofore unable to be controlled satisfactorily without insulin that insulin has such a remarkable effect, but it is also in cases such as Dr. Dunn has spoken of today, severe surgical complications and severe infections that have been the great problem and bugbear of diabetics heretofore, that insulin is going to be of great service in the future.

Dr. W. D. Sansum, Santa Barbara: It took nearly forty years to develop a pancreatic extract and I feel that we should get further if we would put more effort into the laboratory animal than we are doing. It certainly is agreed that at certain times you get results which are good from these various pancreatic products.

About a year ago I, with two other residents of my own town, went to Los Angeles. We worked all day on the floors ourselves to get the glands fresh; we took out sixteen hundred glands from beef, sheep and calves very carefully, put them in alcohol, transported them back to Santa Barbara, and from those sixteen hundred glands we got a good grade of water. Many times during the summer we got a good grade of water, and when we administered this to patients it was of no value.

With respect to regeneration—and we have given a good deal of thought and attention to that—we had under our care many carefully measured patients in whom we could say the tolerance of this one is 50, 60, 70, etc. They had what we considered good care; they had been kept free from blood sugar and kept nourished by keeping them in bed. In those patients we have not observed very material growths in tolerance. A patient of 50 may have developed a tolerance of 60. A patient who had been mismanaged might come in loaded with acidosis and sugar; in many of those subjects we have found a marked growth of tolerance, and we believe that the pancreas can get over its fatigue; but whether any regeneration will take place we have not any evidence as yet.

The high fat diet we never use unless the patient is gaining weight. We do in some instances give five hundred calories of fat in addition to the Woodyatt diet, but we do not do that unless the patient is constantly gaining weight at a rate which exceeds the amount of fat we are giving.

Dr. Dunn may have got hold of some insulin which was not quite as strong as it should be. We have had batches of our own and others which have been worth 0.6 of a gram per cc. Six-tenths of

a gram at 30 would require, of course, 50 units, so that is nothing out of the ordinary.

I rather suspect that in a subject with postoperative acidosis, there is sometimes suppression of many of the internal secretions; and perhaps a little insulin might be a good thing.

The method which Dr. Collip has devised in the beginning is a method of extracting insulin which has stood the test of time, and that is a very important thing to say about a method which is devised as rapidly as he was able to devise that method.

THE INCIDENCE OF ENDOCRINOPATHIES IN THE PUGET SOUND BASIN

A PRELIMINARY REPORT

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This paper is presented in the hope that it may arouse interest both in the study of the geographical distribution of endocrinopathies and in the establishment of prophylaxis in the treatment of simple goiter in the Northwest.

GOITER

From time to time, comments have appeared in the literature relative to the frequency of goiter in the Northwest. However, it was not until the results of the draft examination were reported that statistical information of value was available. The results of that examination at once forced the acceptance by the Northwest of the unenviable position of priority in the incidence of goiter in the United States.

In the War Department publication, Defects Found in Drafted Men (1), which gives an analysis of about one-half million men rejected by the medical examiners of local boards, and of two lots of about a million each who were examined at mobilization camps during the physical examinations of the draft in 1917-18, Idaho is shown as having the highest incidence of simple goiter, a ratio of 26.91 per thousand men. Oregon is second on the list with a ratio of 26.31 per thousand men. The ratio for Washington is 23.4 and for California but 4.45, or a ratio practically the same as that for the entire United States, *i. e.*, 4.35 (Table 1.).

Exophthalmic goiter, according to the aforementioned publication, is most prevalent in the State of Washington. The ratios per thousand men for Washington, Oregon and California are 9.42, 6.37 and 1.95, respectively (Table 1.).

In sharp contrast to the figures just considered are those of Kerr (2), who, while stationed at Camp Lewis, examined

21,182 recruits for goiter. According to this author, goiter occurred in 21.0 per cent of the entire number of men examined. Goiter was found in 39.0 per cent of the Washington men, 32.0 per cent of the Oregon men, and only 8 per cent of the California men (Table II). Kerr's data are of further interest in that he reports the distribution of goiter in the families of the 4,693 goiterous recruits as follows: Sisters 52.0 per cent, mothers 29.0 per cent, brothers 16.0 per cent and fathers 3.0 per cent.

The wide differences in the ratio of goiter between the figures of the War Department and those of Kerr are incongruous; however, I am led to believe that the figures of the latter are more nearly representative of the condition as it exists.

TABLE I. NUMBER OF CASES OF ENDOCRINE DISTURBANCES FOUND IN APPROXIMATELY TWO AND ONE-HALF MILLION DRAFTED MEN

	WASHINGTON		OREGON		CALIFORNIA		U. S.	
	No.	*Ratio*	*No.*	*Ratio*	*No.*	*Ratio*	*No.*	*Ratio*
I. Thyroid								
a. Goiter								
1. Simple	832	23.40	421	26.31	359	4.45	11,971	4.35
2. Exophthalmic	335	9.42	102	6.37	157	1.95	8,647	3.14
b. Cretinism and Myxedema.....							67	
II. Diabetes Mellitus.	9	0.25	11	0.69	31	0.38	740	0.27
III. Anorchism, Monorchism, Cryptorchism and Hypospadia	137	3.85	57	3.55	284	3.53	8,538	3.10
IV. Gigantism.....							7	
V. Acromegaly.....							48	
VI. Addison's Disease..							14	
TOTAL.....1,313			591		831		30,032	

Data obtained from Defects Found in Drafted Men, 1920, War Department, Office of the Surgeon General.

A third series of statistics of a reliable nature relative to the incidence of goiter in the Northwest has been compiled by Hall (3), of the University of Washington.

According to the data of this observer, the percentage of goiter for the State of Washington is 26.37. An examination of over 13,000 students of the University of Washington from 1908 to 1921 shows that 21.5 per cent of the men and 33.2 per cent of the women are goiterous. The percentages of goiter among the students from without the State are as follows: Alaska 19.0, British Columbia 24.0, Oregon 17.0 and Idaho 28.0.

The appearance of goiter is strikingly irregular for the various counties of the State of Washington. However, those counties of the mountain slopes have a consistently higher percentage. It appears that the counties of the eastern slope of the Cascade Mountains are most severely affected with goiter;

however, the highest percentage for any one county was found in Clallam County, which is located along the shores of the Strait of Juan De Fuca. For the details concerning the distribution of goiter by counties see Figure 1.

Hall, in a letter to Dr. V. C. Vaughn, dated Oct. 29, 1921, concerning the goiter situation in and about Seattle, states: "I have experienced great difficulty in carrying out the researches that I wished on account of the antagonism of the Christian Scientists. We have had much trouble here, and recently the school board passed an ordinance prohibiting anyone to carry on any style of medical research in the schools unless it be granted by a city or state ordinance. This was brought about as the result of the work I was doing in the public schools with the

TABLE II. GOITER IN RECRUITS EXAMINED AT CAMP LEWIS, WASHINGTON

	No. Recruits	*No. Cases*	*Per Cent*	*Ratio per 1000*
I. Distribution of goiter in recruits from the Pacific Coast States.				
State				
Washington	2,114	826	39.0	390.00
Oregon	923	291	32.0	320.00
California	4,364	360	8.0	80.00
GRAND TOTAL	21,182	4,693	21.0	210.00
II. Classification of the 4,693 cases of goiter.				
1. Moderately large or large		1,276	27.0	270.00
2. Small		3,417	73.0	730.00
III. Distribution of goiter in the families of the 4,693 recruits with goiter.				
1. Sisters		554	52.0	520.00
2. Mothers		311	29.0	290.00
3. Brothers		172	16.0	160.00
4 Fathers		33	3.0	30.00
IV. Disturbances associated with goiter.				
1. Hand tremor		2,591	55.0	550.00
2. Moist, blue hands		4,123	88.0	880.00
3. Curved finger nails		2,612	56.0	560.00

Table compiled from data gathered by Dr. W. J. Kerr, Arch. Int. Med. (Chicago), 1919, **24**, 347-358.

sanction of the medical director and superintendent of public instruction. I managed to survey eight schools before the pressure was sufficient to have me stopped. Starting with the kindergarten in the schools, I examined every boy and girl"—A sad commentary on those who boast of their state, climate and low mortality rate. But why quarrel with those who oppose us when in our own midst are those who, like a physician and surgeon of good standing, advised an inquiring mother to spank

her little daughter if she again showed anxiety concerning her goiter.

The grade school examination referred to by Hall in the preceding paragraph, showed goiter to be present in 41.5 per cent of the boys and 47.7 per cent of the girls between the ages of 6 and 14 years. As mentioned by Hall, "the percentages of goiter in these children are roughly the same for both boys and girls until the twelfth year is reached, when the girls shoot way ahead of the boys, the boys not approaching them until a few

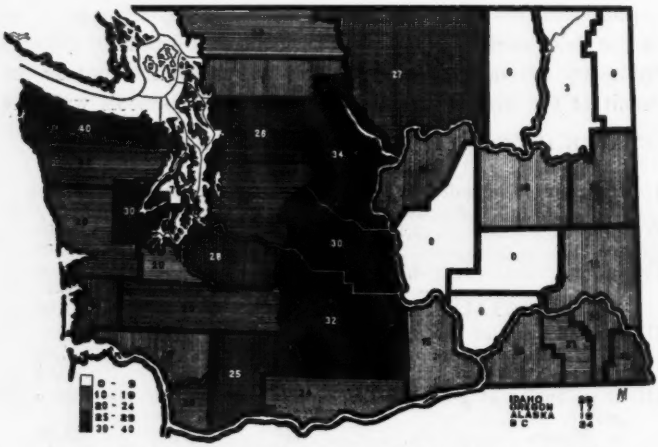

Fig. 1, Distribution of Goiter in Washington by Counties

years later." For further details concerning the grade school children see Table III and Figure 2.

Goiter was observed by Hall in the students of one high school in 38.3 per cent of 575 boys and 65.6 per cent of 521 girls (Fig. 2).

"Fat boys and girls had no thyroid that could be palpated or observed, although this was not on account of the fat. It was also interesting to note that in a class of defectives only four thyroids could be palpated out of a class of thirty, *i. e.*, 13 per cent." This statement is of considerable personal interest, for I have been repeatedly impressed with the infrequency of palpable thyroids in obese and mentally defective children, although, at present, I have no figures on this point.

According to the draft examinations tachycardia occurred in Washington recruits in a ratio of 7.65 per thousand men. The ratio for the United States was 4.45. In discussing this point the conclusion is reached "that the relation of tachycardia

TABLE III. INCIDENCE OF GOITER IN THE SCHOOLS OF SEATTLE

GRADE SCHOOLS			ONE HIGH SCHOOL				
	Boys	*Girls*		*Boys*		*Girls*	
Age	*Per Cent*	*Per Cent*	*Age*	*No. Exam.*	*Per Cent*	*No. Exam.*	*Per Cent*
6	21.0	25.4	14	96	42.7	...	...
7	35.5	33.5	15	165	47.3	176	66.5
8	38.7	36.4	16	151	30.5	161	60.3
9	35.0	43.0	17	97	33.0	105	64.8
10	36.0	48.0	18	66	37.9	79	70.9
11	42.4	45.0	STUDENTS UNIVERSITY OF WASHINGTON				
12	47.0	57.7	No. examined was over 13,000.				
13	49.0	70.0	Men				21.50
14	60.0	70.0	Women				33.20
			General Average of State.....				26.37
Average	41.5	47.7	Total	575	38.3	521	65.6

Table compiled from data gathered by Dr. David C. Hall, Professor of Hygiene, University of Washington, Seattle.

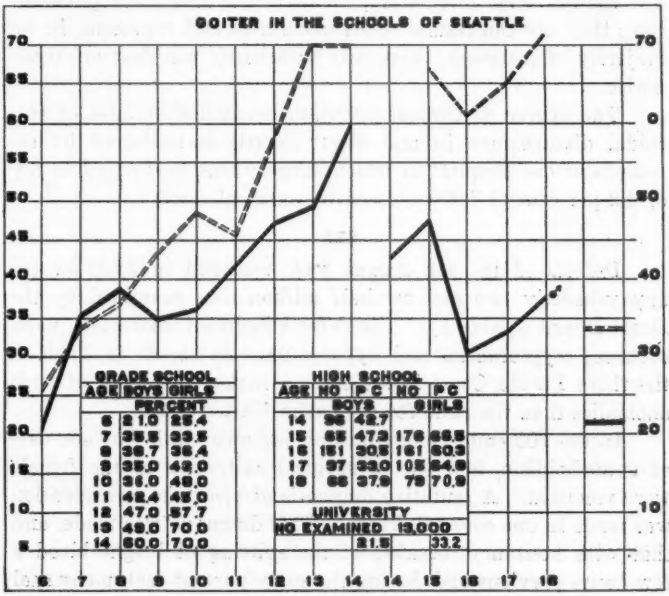

Fig. 2, Goiter in Schools of Seattle

and exophthalmic goiter is fairly close, but that tachycardia is more widely spread throughout the population than exophthalmic goiter." According to Kerr, hand tremor occurred in 55 per cent of the 4,693 goiterous recruits examined at Camp Lewis; moist, blue hands occurred in 88 per cent, and curved finger nails in 56 per cent of the recruits.

The presence of goiter was recorded in only 167 of 3,254 consecutive clinical cases passing through our own offices (Table IV). This low figure, 5.1 per cent, in no way represents the incidence of goiter among Seattle patients for the very simple reason that a systematic search for goiter was not made. Possibly the existence of goiter is taken for granted and mention not made of it unless symptoms referable to the gland are manifest. To quote a colleague on this point: "Goiter is so common that we pay no attention to it"—really a better frame of mind than that of carrying animosity towards those who are sufficiently interested in their condition to seek the advice of a physician. The figures, while interesting, should not be taken as representative; they are the results of six examiners and represent, in the majority of instances, cases only sufficiently manifest to attract notice.

The degree of clinical attention demanded because of thyroidal disturbances in and about Seattle is indicated by the records of one hospital in which surgery was performed in 300 or 4.2 per cent of 7,000 consecutive surgical cases.

SEX

Defects of the sex organs were recorded in 8,538 of the approximately two and one-half million men examined by the Draft Board (Table 1). The defects included anorchism, monorchism, cryptorchism and hypospadia. As shown in Table 1, the three Pacific Coast States have a higher incidence of such anomalies than the ratio for the entire United States.

In the 202 endocrinopathies of our own clinic but one case of eunuchoidism, and one of surgical castration of the female were recorded. A tentative diagnosis of vicarious menstruation was made in one case (C. 2118). This diagnosis was made, and that with hesitancy, because of the spitting of bright blood a few hours previous and during the early part of each menstrual cycle, over a period of about seven years. The establishment of

pregnancy in this case was followed by complete cessation of both the menstrual and oral flow.

PANCREAS

Diabetes mellitus was found in 10, or 0.32 per cent of the 3,254 patients passing through our clinic. This figure is decidedly larger than that recorded for drafted men, *i. e.*, a ratio of 0.27 per 1,000 men. Diabetes occurred in a ratio of 0.25 per thousand recruits in the State of Washington, 0.69 in Oregon and 0.38 in California (Table 1).

PITUITARY

Acromegaly was found in only 48, and gigantism in 7 of the total number of men examined for the Draft (Table 1). Endocrine disturbances primarily referable to the pituitary

TABLE IV. INCIDENCE OF ENDOCRINOPATHIES AS OBSERVED IN 3,254 CONSECUTIVE CLINICAL CASES (POLYCLINIC, SEATTLE)

Disturbance	*Number*	*Per Cent*
A. Thyroid		
1. Goiter	167	5.10
2. Cretinic	8	
B. Pancreas		
1. Diabetes mellitus	10	
C. Pituitary		
1. Froehlich's syndrome	6	
2. Gigantism	3	
3. Infantilism	1	
4. Diabetes insipidus	1	
D. Gonads		
1. Male		
a. Eunucoidism	2	
2. Female		
a. Castrate	1	
b. Vicarious menstruation (Case C 2118)	1	
E. Thymus		
1. Status thymolymphaticus	2	
TOTAL	202	6.21

gland appeared in 9 of our cases as follows: Froehlich's syndrome, 6; gigantism, 3; infantilism, 1, and diabetes insipidus, 1 (Table IV).

SUPRARENALS AND THYMUS

Addison's disease was found in 14 of the two and one-half million men examined for war services. This disease was not observed in the 3,254 cases of our clinic.

Status thymolymphaticus occurred in 2 of the 202 cases of endocrine disturbance of our own series. In one patient, a girl

of less than five years of age, the condition was associated with a high degree of exophthalmic goiter. A complete report of this case recently appeared in this journal.

DISCUSSION

A more thorough survey than has been possible would, no doubt, show very different results. These data, however, are sufficient to attract the attention of those interested in what may be termed the geography of endocrinology.

The data are of primary interest because of their bearing upon an endocrine situation which, to a large extent, is easily controllable, namely, simple goiter.

Inasmuch as no concerted effort has been made to control goiter in the Northwest, it may be of interest to note the results of the prophylactic treatment of this condition both in this country and abroad (4). According to Marine and Kimball, who found goiter present in 56 per cent of the school girls of Akron, Ohio, normal girls taking prophylactic treatment did not develop goiter, while 27.6 per cent of those not taking treatment, and who had been without goiter at the beginning, developed either goiter or enlargement of the thyroid. On the other hand, the goiter disappeared in 60 per cent of those who had goiter at the beginning of treatment and who took the prophylactic doses of sodium iodide. Following the reports of Marine and Kimball, prophylactic treatment of goiter was instituted in Switzerland. In 1918 the incidence of goiter among the school children of the Canton of St. Gall was 87.6 per cent. In January of 1922, after iodine treatment, the incidence of goiter had dropped to 13.1 per cent.

The results obtained in the handling of simple goiter in other parts of the country are such that further neglect in instituting corrective measures in the Northwest is no longer excusable. Especially is this so when we recall, as stated by Marine, that "simple goiter is the easiest known disease to prevent."

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DISCUSSION OF PAPER BY DR. WHEELON

Dr. J. Earl Else, Portland: In Oregon we have been carrying on work similar to that of Dr. Wheelon in Seattle. Our distribution of goiter, however, is different from what Dr. Wheelon has found it. In the survey made three years ago in a number of towns on the eastern side of the Cascades, Crater Lake National Park and the Willamette Valley, we found that goiter is rather rare on the east side of the Cascades. On the other side of the Cascades, in the Willamette Valley, there is a considerable amount of goiter. The most extensive goiter section that we found, however, is in the Rogue River Valley and in Metow Valley. Goiter there among animals is so prevalent that it interferes with the animal industry, especially among pigs.

We have a goiter clinic in the medical school. Since its establishment we have seen between five and six hundred cases of various types of goiter. First there is the congenital goiter of which there is very little. Then we see another type appearing in the child beginning to walk and get active, occurring at two or three years of age. Another type appears in school children who become interested in games and consequently will go to a state of exhaustion. Next we see goiter appearing just before and just after puberty. Then we come to an interesting type of goiter occurring during puberty, in which the patients are hypertoxic. We are using the term adolescent hypertoxic goiter in connection with this type.

In administering iodine or thyroxin to the girls of this group we have, without exception, made them worse. For that reason it is a dangerous thing to permit nurses and others to give it to school girls. One girl whose metabolism rate was as high as plus 65 per cent dropped to 20.

We conceived the idea some time ago that it might be possible in this group of subjects to give a small dose of iodine or a small amount of desiccated thyroid in order to put the gland at rest and allow it to become stable. In every case, however, the patients have been made worse. Therefore, I think that we must be careful in carrying out the suggestions of Kendall and Marine.

Our school doctor in Portland is making a rather comprehensive survey, and we expect to do some work along this line, but it is going to be done under the supervision of Dr. Rush. It must be remembered, however, that the normal thyroid gland in goiter districts is larger than in non-goiter districts, and we must not take the mere fact that you can feel the thyroid gland as an evidence of goiter. We can palpate nearly every thyroid gland in the city of Portland.

Again I want to emphasize the care we must use in the use of iodine. A year ago, at the Extension Lectures in Washington, one of the lecturers advised the use of some seaweed preparation. I believe that the general use of that would be positively harmful, because iodine would thus be given to patients who should not have it.

It seems to me that the reversion to the Hahnemann theory in the practice of medicine will not stand the test of time. In the few cases that we have seen it employed it has been rather disastrous, and we know that in this group of adolescent toxic goiter cases iodine is positively dangerous.

Dr. S. Solis-Cohen, Philadelphia: Dr. Else's warning that nurses and untrained persons should not be given bottles of iodine and sent through the schools to administer the drug indiscriminately to every girl with thyroid swelling is entirely justified.

That, however, does not mean that the drug ought not to be used in suitable cases, either by Marine's prophylactic method or

according to Plummer's practice. It rather emphasizes the necessity for accurate diagnosis as pointed out by Dr. Boothby.

Dr. Else appears to have misunderstood Dr. Boothby. The latter said distinctly that in toxic goiter cases iodine is harmful—as all of us know—and he conceded that iodine might perhaps be harmful in certain cases of adenoma without toxic symptoms, if it awakened a latent toxic tendency. But in Graves' syndrome there is a different condition. In this iodine is employed to prevent the post-operative collapse sometimes observed, and is given on certain definite indications, the chief of which is the basal metabolic rate. If I apprehend the reasoning correctly, it is that in one set of cases there is a quantitative change, namely excess of normal secretion, therefore an excess of iodine, or perhaps an excessive supply of iodine in the secretion as well. In the other case—Graves's syndrome—there is a perverted secretion, and upon the possibility that this perversion may be loss of iodine, Dr. Plummer and his associates are working out a scientific method of discrimination. Whether this theory is correct, further study is required to show; but meanwhile we have the very practical results reported, which do mark a distinct advance in both medical and surgical handling of Graves's syndrome. With sufficient individualization of patients, the method should be applied by all of us who have the opportunity, so that its indications and limitations may be clearly established.

Dr. Homer Wheelon, Seattle: We have a very serious condition in the State of Washington in goiter, a very high incidence. We are not permitted at the present time to carry on examinations in the schools, and our information must be gathered haphazard from various sundry sources.

Dr. Else, in his statement concerning the administration of iodine, is, to my mind, entirely correct. Very disastrous and undesirable results have been obtained by giving iodine to a certain number of patients, and I do not believe that prophylaxis should be a promiscuous affair. We have all grades of goiter, and some of them, while apparently simple when thoroughly worked out, are not so simple.

My own hope is to arouse enough interest that we may be at least permitted to do something in the treatment of goiter in the Pacific Northwest. I am delighted to know that Dr. Else and his co-workers are carrying on a similar work in Oregon.

ONE RELATION OF GLYCOSURIA TO KIDNEY PERMEABILITY

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CLEVELAND

The presence of sugar in the urine per se is not sufficient proof that one is a diabetic. Many normal persons show glycosuria without fasting hyperglycemia, the sugar in the urine in such a case indicating merely that the renal filter is permeable to a low blood sugar content. Thus in a series of 714 observations, 13.8 per cent showed glycosuria in the presence of normal blood sugar content.*

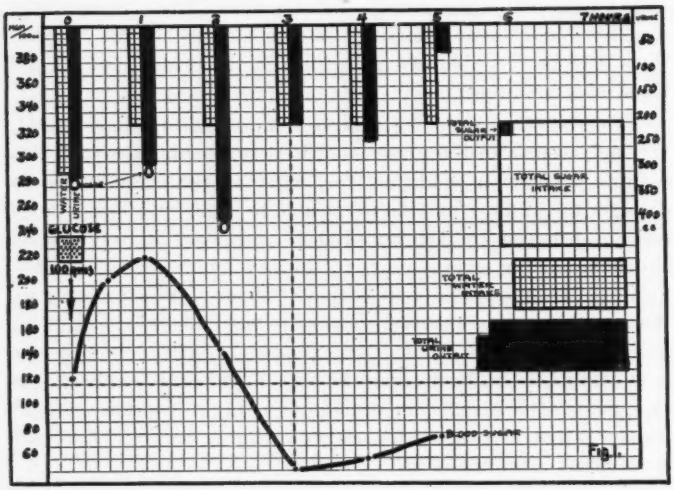
On the other hand, an inverse relation is sometimes found, viz., aglycosuria in the presence of hyperglycemia. In fact, this is quite a common condition, for, while in the early stages of diabetes the kidneys may be permeable to sugar at a blood sugar level of between 160-180 mg./100 cc., after the hyperglycemia has persisted for several years the kidney will not be permeable until the blood sugar content is above 200 mg./100 cc. It follows that one can only venture a guess as to the diabetic status of an individual from the result of an examination of the urine. The true condition can be determined only by a blood sugar estimation, made after a sufficient period of fasting, for a postprandial sugar content gives no information within a period of at least three hours after the meal.

Let us suppose, for example, that the kidneys of each of two patients are permeable to sugar at a blood sugar level of 140 mg./100 cc. and of 240 mg./100 cc., respectively. Since the blood sugar of anyone, whether diabetic or not, can be brought to a normal level by a selected diet, let us suppose that the blood sugar content of each of these patients is normal, that to each patient, 50 gm. of glucose is given by mouth on a fasting stomach, raising the blood sugar in each case to 200 mg./100 cc., and that the hourly blood sugar estimations on these subjects

* Glucose tolerance and its value in diagnosis, John (H. J.), J. Metab. Research, 1922, I, 497-548.

show that the first is not a diabetic, while the second is a diabetic.

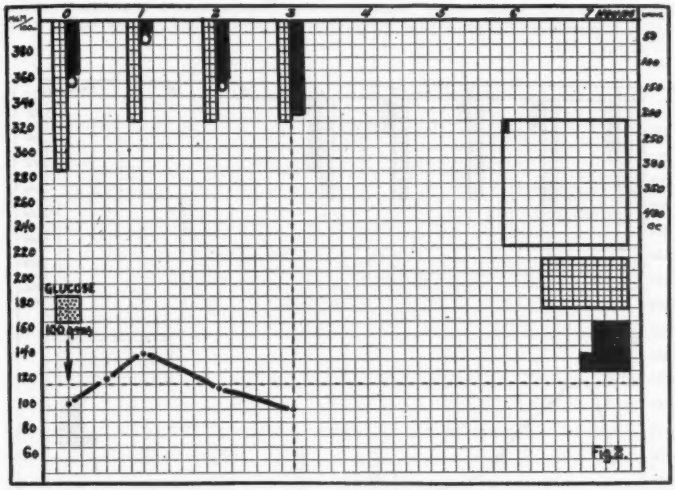
The hourly urine examinations in the first case will show that glycosuria appears when the blood sugar reaches about 140 mg./100 cc. and persists as long as the blood sugar stays at or above that level, while in the second case we shall find that no sugar appears in the urine at any time, for although the blood sugar rises to 200 mg./100 cc., it does not reach the threshold of kidney permeability for glucose. In the presence of high hyperglycemia, therefore, we fail to find glycosuria,



even though the blood sugar curve shows that this subject is a diabetic.

Such cases as these, *i. e.*, glycosuria in a non-diabetic and aglycosuria in a diabetic, are of frequent occurrence and they indicate the essential need of checking the urinary findings by accurate blood sugar determinations before forming a final judgment as to the diabetic status of the patient. A case which I reported a year ago illustrates this point, and it seems well at this time to review briefly several other cases of this type in order to emphasize a problem that the physician meets in his daily practice, to point a way toward its solution, and to interpret the laboratory findings in each case.

Case No. 1: A married woman, 66 years of age, came to the clinic complaining of rheumatism. The family history was negative. She had had grippe and rheumatism and sciatica 6 weeks before this consultation. For the last 8 months she had had frequency of urination but no loss of weight and no thirst. She had always been fond of sweets and had eaten them freely. The routine examination showed sugar in the urine. Examination of the blood showed in mg./100 cc., blood sugar, 113; urea, 22.9; chlorides, 574. A glucose tolerance test was made with the findings given in the table and graphically shown in Chart I, which demonstrate that this is a case of glycosuria in a non-diabetic subject.

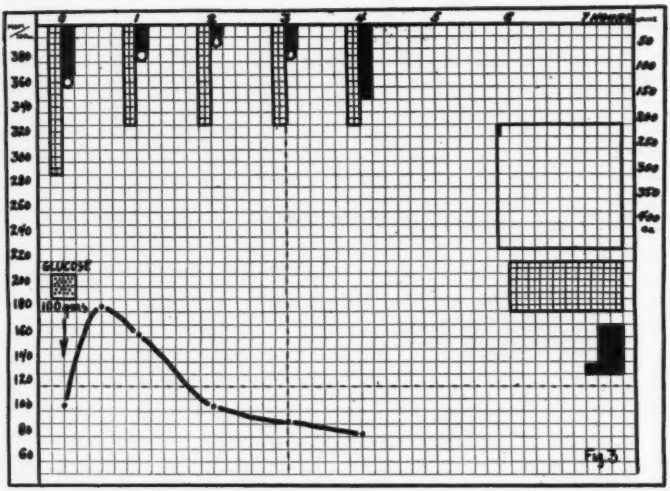


Case No. 2: A single woman, aged 22 years, came for a consultation because of increasing weight, having gained 20 pounds during the preceding 2 months. Her family history was negative. She had had diphtheria, scarlet fever, pneumonia, grippe and tonsilitis; she complained of a "weak spell" every afternoon when things became blurry before her eyes, of feeling "dopy" and of sleeping a great deal. During the preceding 6 months she had had dribbling of the urine, but at the time of consultation thought she was passing more urine. She suffered from occipital headaches, and a coarse tremor of the hands. The Wassermann test was negative, spinal fluid negative, x-ray of sella turcica negative. The result of the glucose tolerance test is shown in the table and in Chart II.

Joslin and others have called attention to the importance of watching for diabetes in fat people. Whenever I see a middle aged fat patient, I always wonder whether the adiposity betokens a beginning diabetes or whether it is merely a normal process. When in addition to the increasing weight there is some sugar in the urine, the necessity for a glucose tolerance

test is clearly indicated as the only means by which the true status of the subject can be determined. In this case, in spite of the sudden adiposity, there was no decrease in the carbohydrate metabolism, and the glycosuria therefore was of no significance as it indicated merely a permeable renal filter.

Case No. 3: A physician, 37 years of age, submitted himself to examination simply for the value of the data which might be obtained. He was in perfect health; he had had measles, malaria, carbuncles and influenza; there was no familial diabetic history. The physical examination was negative; the Wassermann test was negative; a glucose tolerance test gave the findings shown in the table and in Chart III.

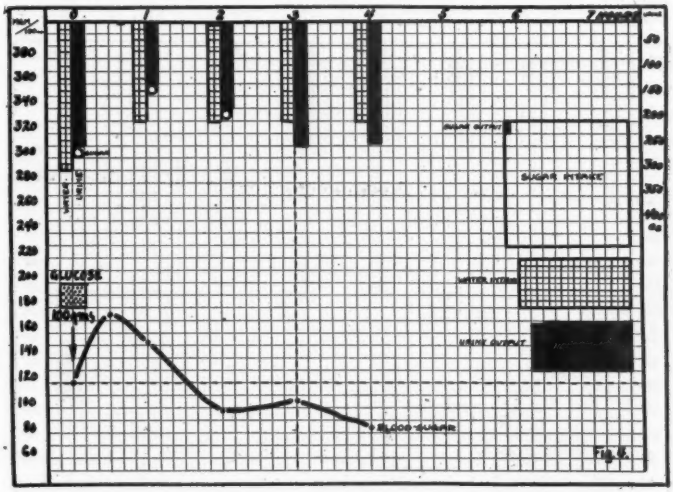


In a perfectly normal subject the glycosuria had no significance as the laboratory findings disclosed an increased permeability of the renal filter for glucose with a normal carbohydrate tolerance.

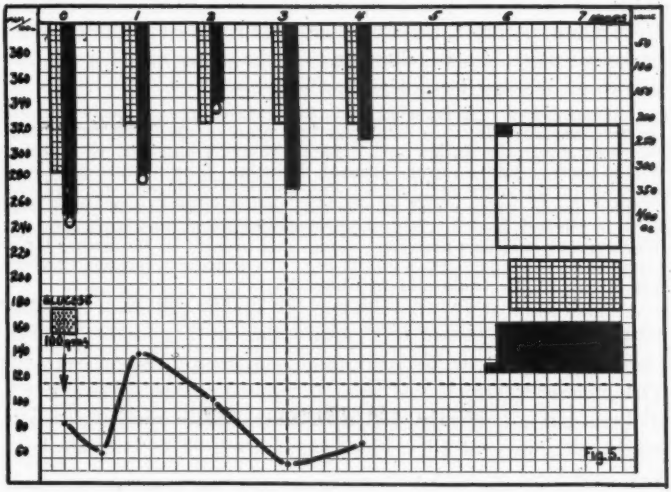
Case No. 4: A young single woman, 17 years of age, complained of nervousness and a slight cough. The family history was negative. The patient had had tonsillitis, grippe, malaria, tonsillectomy, adenoidectomy and herniotomy. She had noticed a slight enlargement of the thyroid gland at puberty. She had experienced no loss of weight nor strength. The Wassermann test was negative; blood chemistry examination showed sugar 120, urea 15.7, chlorides 587 mg./100 cc. Sugar was found in the urine. The results of a glucose tolerance test are given in the table and in Chart IV.

The glycosuria in this case betokened only an increased

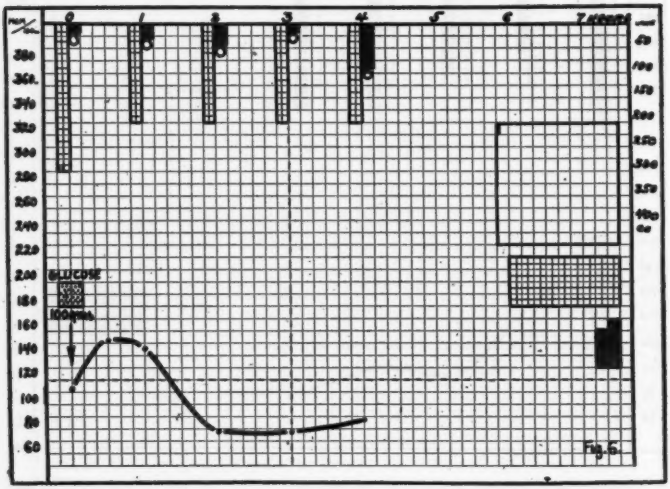
renal permeability to sugar in a mild case of hyperthyroidism, the carbohydrate tolerance being normal.



Case No. 5: A married woman, 40 years of age, came in because of headaches. Her brother had diabetes. She had 4 living and well



children and had had a number of miscarriages. She had had pneumonia, grippe, tonsillitis and rheumatism. Physical examination was negative; the Wassermann test was negative; the blood pressure was 130/70. Routine examination of the urine showed sugar. A glucose tolerance test gave the findings shown in the table and in Chart V.

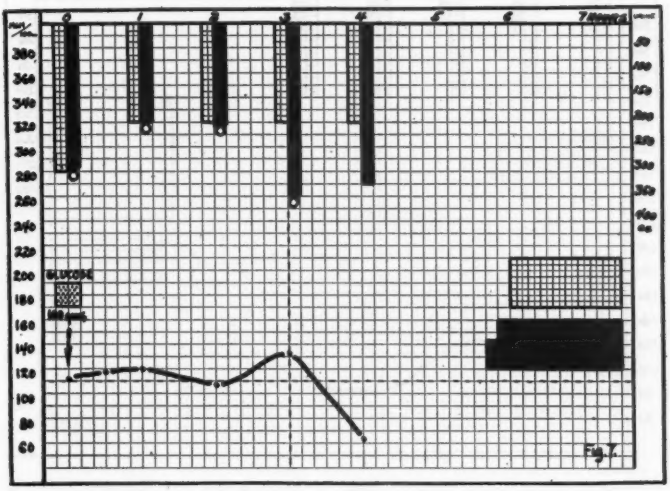


In a middle aged woman with a familial recurrence of diabetes, the presence of glycosuria was bound to excite suspicion. Here again, however, the laboratory test revealed an unimpaired carbohydrate tolerance, showing that the sugar in the urine was due to an increased renal permeability.

Case No. 6: A married man, 34 years of age, came in because on the preceding day life insurance had been refused him on account of glycosuria. His father and a paternal uncle had died of diabetes and a brother had a severe case of diabetes. The patient had been married for 11 years and had 3 living and well children. He had had typhoid fever, grippe and gonorrhea, but during recent years had been in perfect health. His physical examination was negative: the Wassermann test was negative; sugar was present in the urine; blood urea, 14.4; chlorides, 490 mg./100 cc. The glucose tolerance findings are shown in the table and in Chart VI.

With such a familial history of diabetes it was certainly natural for the man to feel certain that he had diabetes when sugar was found in his urine and life insurance was refused. The glucose tolerance test showed, however, that he was not a diabetic but a perfectly well man, with only a renal filter permeable to glucose at a low blood sugar level. This man has been well and hard at work ever since.

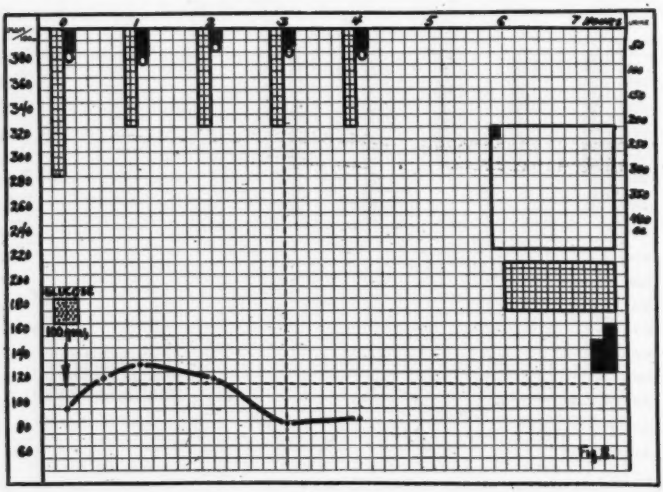
Case No. 7: A single man, 22 years of age, complained of indigestion. His family history was negative. He had had typhoid fever at the age of 2 years, influenza 4 years ago and tonsillitis since the latter date. He had been refused insurance on account of the presence of sugar in the urine and for 2 years was treated as a diabetic by his physician. Physical examination was negative except for a slight tenderness below the umbilicus. A glucose tolerance test showed the findings given in the table and shown in Chart VII.



This man had a low renal threshold for glucose which accounted for the glycosuria, but had no relation to his ability to utilize carbohydrates, which was excellent. Without the information gained from the glucose tolerance test this man might have continued to be treated for diabetes and would inevitably have suffered continually and unnecessarily from his depression of spirit and increased bodily weakness as the result of his limited diet.

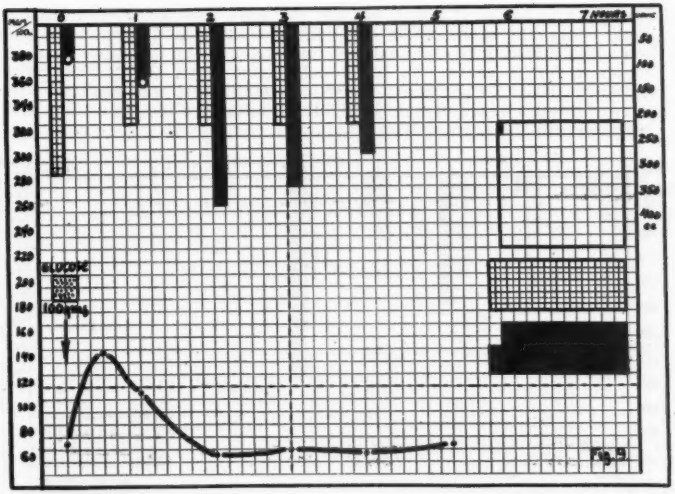
Case No. 8: A physician, 44 years of age, came in because of sugar in the urine. His father had died of diabetes and the discovery of glycosuria in himself had frightened and depressed him. He had been married 13 years and had 2 living and well children. At the age of 9 he had had measles followed by a cough. He had fibrosis of both apices of the lungs but no acid fast bacilli were found in the sputum. Otherwise the physical examination was negative. His best weight had been 130 lbs., but his weight then was 112 lbs. The Wassermann test was negative; blood sugar, 100 mg./100 cc.; plasma chlorides, 575 mg./100 cc.; urea, 35 mg./100 cc. A glucose tolerance test gave the findings given in the table and in Chart VIII.

As in the preceding case the familial diabetic history and the finding of glycosuria naturally aroused an extreme apprehension of diabetes. Again in this case the glucose tolerance test showed the glycosuria to be due entirely to a very low renal threshold. The good carbohydrate tolerance ruled out diabetes.

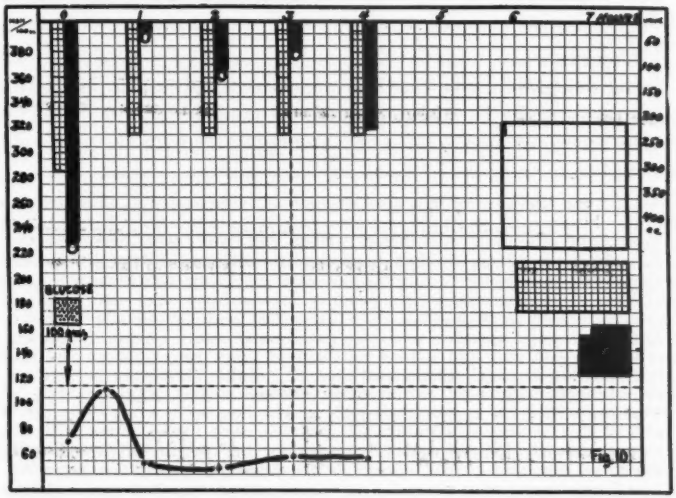


Case No. 9: A single man, 22 years of age, came in because of infantilism and weakness. His family history was negative. He had had no childhood diseases; he had had influenza 2 years before. He was born in Russian Poland, at full term. When he was about 15 months old, his parents first noticed that he was not normal. He did not get along well in school. He had a high, squeaky voice and his ideas were childish. An x-ray examination of the sella turcica was negative; basal metabolism, —17; Wassermann, negative; blood sugar, 84 mg./100 cc.; urea, 14.1; creatinin, 1.08 mg./100 cc.; chlorides, 573 mg./100 cc. A glucose tolerance test was made with the results given in the table and in Chart IX.

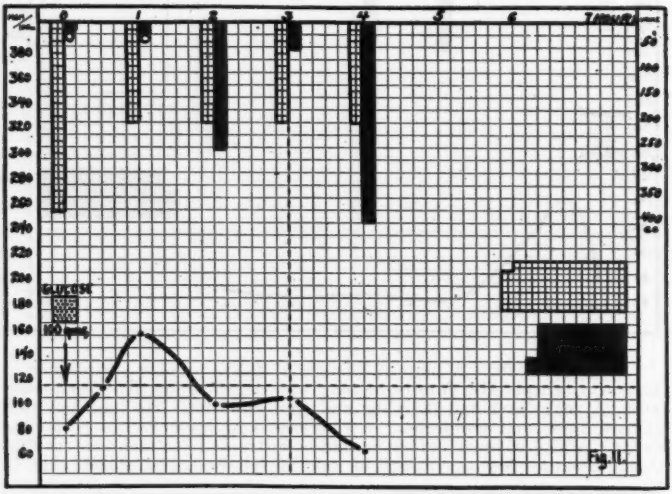
The glucose tolerance curve was typical of hypopituitary disease associated with a very low renal threshold for sugar, which, however, is not always associated with hypopituitarism. Such a patient could be starved almost to death and would still show sugar in the urine. The glucose tolerance test ruled out diabetes and confirmed the familiar observation that hypopituitary disease is associated with an increased carbohydrate tolerance.



Case No. 10: A man of leisure, 51 years of age, complained of loss of vitality. His family history was negative; he had been married 25 years and had 3 living and well children. He had had tonsillitis, lues, and gonorrhea in the past and appendicitis 6 months before. Fifteen years before he had been treated for stomach trouble. Aside from his loss of vitality he said he felt well. He stated that he



drank a great deal of water but did not have frequency of urination. Some years ago a diagnosis of hyperthyroidism had been made and he had been taking thyroid extract for 10 years; he had been sexually impotent for 5 years. A blood cell count gave WBC 6000, RBC 4,610,000; HGB 70 per cent; the Wassermann test was negative; the urine showed a trace of sugar. Glucose tolerance test gave the finding shown in the table and in Chart X.



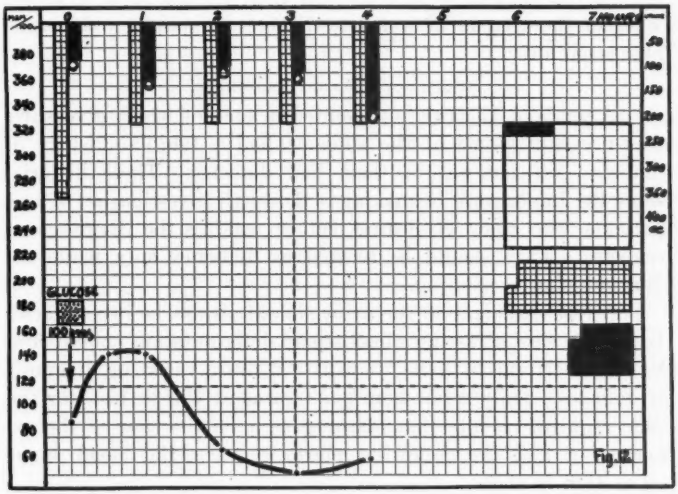
As in the preceding case the blood sugar curve is typical of hypopituitarism. These subjects may or may not have a low renal permeability so that the presence of glycosuria as in this man may easily be misinterpreted. A determination of the glucose tolerance curve, however, at once interprets the case and the glycosuria ceases of be of any consequence.

Case No. 11: A married woman, 32 years of age, came to the clinic because of multiple swollen joints. Her family history was negative. She had 4 children living and well; she had had two miscarriages. Her ailment began with stiffness of the knees and shoulders, spreading to her hands and involving other points until at this time practically every joint in the body was involved and painful. Her teeth had all been extracted and her tonsils removed. She had a good appetite and was not constipated. She said that she craved sweets and had a moderate thirst. Six years before she had had severe pleurisy. There had been no notable change in her weight or strength. Physical examination showed a tall, angular type of woman, 5 ft. 8 in. in height, weighing 115 lbs., with a blood pressure of 110/65. Multiple subcutaneous nodules were found, some with old sinuses, mostly lobulated, freely movable; her pupils retracted well; the nose, ear and throat, chest, heart and abdomen were negative. The blood count was normal; the blood sugar was 106 mg./100 cc.;

urea, 12 mg./100 cc.; uric acid, 2.8 mg./100 cc.; creatinin, 0.86; NPN, 18.2; Wassermann, 4 plus. The urine showed a trace of sugar. Glucose tolerance test gave the findings shown in the table and in Chart XI.

In this case the glucose tolerance test at once ruled out diabetes as a possible cause of the woman's condition, the glycosuria being of no significance.

Case No. 12: A man, 32 years of age, was referred to the clinic by his family physician because of sugar in his urine. His family history was negative. He was married and had one child 7 months old. He had had no diseases of childhood nor any other disease since, but he had had appendectomy and the glands in the groin had been drained. He used to drink considerably before prohibition. He said he felt well but was worried by the presence of sugar



in the urine which had been discovered a month before on a routine examination by the physician of the company in which he was employed,—by whom he was referred to his family physician. The latter gave him some medicine which was imported from Germany, and also put him on the following diet: limited amount of meat; no vegetables; no beverage of any kind containing sugar; nothing with flour. He was allowed plenty of gluten bread and plenty of water. The patient took the prescribed medicine religiously, even though it produced diarrhea, but he did not adhere to the diet, as he was losing weight and was continually getting weaker. During the preceding 3 weeks he had lost 22 pounds. The physical examination was negative. On entrance the fasting blood sugar was 85 mg./100 cc.; the following day it was 92 mg./100 cc. Urea was 21 mg. /100 cc.; uric acid, 2 mg./100 cc.; creatinin, 1.5 mg./100 cc.; plasma chlorides, 605 mg. /100 cc.; Wassermann was negative. Glucose tolerance test was given with the findings shown in the table and in Chart XII.

From the data given above it is evident that this was not a case of diabetes but that the glycosuria was due to a permeable renal filter.*

It is to be noted that the fasting blood sugar was a low normal and that while the blood sugar level rose quickly after the ingestion of glucose, it returned to the normal level in little more than an hour. Sugar was found in the urine throughout the test and it is probable that this man will have glycosuria for the rest of his life. This, however, is of no consequence, and the man should not be put on any restricted diet. It is quite right, however, in such a case, *i. e.*, in the presence of glycosuria, to put the patient on a restricted diet until it is determined whether the glycosuria is due to diabetes or simply to a permeable renal filter.

SUMMARY AND CONCLUSIONS

A series of 12 cases is presented in each of which glycosuria was present. Some of the subjects had a familial history of diabetes, yet not one of them had diabetes. These histories show the importance of making a thorough investigation of any patients who show glycosuria before making the diagnosis of diabetes. They should be treated as diabetics only while the final decision is pending.

A trace of sugar in the urine should always be investigated. In such a case a fasting blood sugar determination should first be made. If this is high, there is a definite basis for diagnosis of diabetes. Only a few hours of treatment will be lost, for the time required is only that elapsing between the time of the examination and the following morning when the blood sugar estimation is made.

If the blood sugar content is normal or only slightly raised the problem is not settled. In such a case a glucose tolerance determination should be made. If the blood sugar returns to the normal level promptly,—within two hours after the injection of 100 gms. of glucose,—the subject is normal; if it returns to the normal level at the end of the third hour, then we are dealing with a prediabetic; if it takes more than 4 hours for the normal level to be reached again, then we are dealing definitely with a case of diabetes, regardless of the fasting blood sugar content.

* John (H. J.), J. Am. M. Ass., 1922, 78, 103-105.

Case No.	Fasting		½ Hour Later		1 Hour Later		2 Hours Later		3 Hours Later		4 Hours Later		5 Hours Later		Total Water Intake cc.	Total Urine Output cc.	Total Sugar Intake Gms.	Total Sugar Output Gms.	Blood Corpuscle Vol. at Start, Percent.
	Blood Sugar Mg. per 100 cc.	Urine Sugar	Blood Sugar Mg. per 100 cc.	Urine Sugar	Blood Sugar Mg. per 100 cc.	Urine Sugar	Blood Sugar Mg. per 100 cc.	Urine Sugar	Blood Sugar Mg. per 100 cc.	Urine Sugar	Blood Sugar Mg. per 100 cc.	Urine Sugar	Blood Sugar Mg. per 100 cc.	Urine Sugar					
1	103	2 Plus	184	.....	161	3 Plus	103	3 Plus	91	Plus	81	Neg.	.....	.....	900	220	100	0.11	.....
2	121	Plus	127	.....	130	Plus	117	Plus	143	Plus	73	Neg.	.....	.....	900	1060	.....	.....	51.5%
3	92	Trace	147	.....	146	3 Plus	70	3 Plus	38	2 Plus	63	Trace	.....	.....	950	470	100	3.84	41. %
4	103	Trace	123	.....	145	3 Plus	119	2 Plus	100	Neg.	.....	.....	.....	.....	700	335	100	0.28	.....
5	124	Plus	204	.....	222	Plus	149	2 Plus	50	Neg.	60	Neg.	77	Neg.	900	1170	100	0.96	38.6%
6	85	Trace	119	.....	161	Trace	104	Neg.	110	Neg.	68	Neg.	.....	.....	980	730	.....	.....	37. %
7	120	2 Plus	174	.....	151	Trace	98	Trace	106	Neg.	83	Neg.	.....	.....	900	795	100	0.5	46.5%
8	74	2 Plus	148	.....	115	4 Plus	65	Neg.	70	Neg.	67	Neg.	74	Neg.	1100	1052	100	0.26	40. %
9	75	Trace	117	.....	59	Plus	53	Plus	63	Trace	62	Neg.	.....	.....	900	379	100	0.20	35. %
10	89	2 Plus	62	.....	143	3 Plus	108	4 Plus	55	Neg.	72	Neg.	.....	.....	900	1015	100	1.29	31. %
11	100	Plus	125	.....	136	2 Plus	123	2 Plus	89	Plus	91	Trace	.....	.....	900	162	100	0.77	.....
12	111	Plus	151	.....	145	2 Plus	77	2 Plus	77	Plus	88	Plus	.....	.....	900	178	100	0.2	47. %

In mild or beginning cases of diabetes, a slight reduction of the diet suffices often to bring the blood sugar to the normal level. This fact must always be borne in mind, and a patient questioned regarding this point, as otherwise the physician may miss an important clue. The early cases of diabetes are the ones for which most can be done. In the late cases in which the Islands of Langerhans have been worn out, we can merely "mark time."

These mild and beginning cases of diabetes constitute our real problem, for by dietary routine a normal blood sugar content can be maintained; and the patient can work and care for his family. These subjects need not become a burden to their families nor to society as is the case with a severe diabetic.

To treat a patient with slight glycosuria, as a diabetic, without further investigation is not justifiable; but to disregard glycosuria is still worse; we must accept Joslin's view: "treat every case of glycosuria as diabetes until you have proven it otherwise." I would only add to this: "do not lose any time in proving or disproving that the glycosuria is due to diabetes." The anxiety and the mental anguish which a diagnosis of diabetes brings to a subject, and not only to him but to his whole family, are very trying. The most appreciative and grateful patients are those who have been relieved of this horrible nightmare and told that they have "no diabetes," that they may eat anything they wish, and live like normal human beings.

SECRETIN AND A SUGGESTION AS TO ITS THERAPEUTIC VALUE

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and
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The first suggestion that the secretion of pancreatic juice is influenced by the presence of acid in the duodenum was made by Dolinski (1) in 1895. Pawlow (2) taught that the activity of the pancreas is due to the secretory nerves it receives through the vagus and sympathetic. Popielski (3), in an endeavor to reconcile the action of acid in the small intestine with the idea of nervous control over pancreatic activity, advanced the explanation that the secretion arose from a peripheral reflex through scattered ganglia of the pancreas situated mostly near the duodenum. In this he was confirmed by Wertheimer and Lepage (4). However, during the past twenty years an ever-growing mass of evidence has been accumulating in support of the idea elaborated by Bayliss and Starling (5, 6), founded on the earlier observation of Dolinski, to the effect that acid in the duodenum produces a hormone, secretin, which stimulates the cells of the pancreas directly.

They believed that the acid acted upon a precursor, prosecretin, present in the mucous membrane, thereby permitting its extraction or, in the intact animal, absorption into the blood stream. They also showed (7) that secretin can be obtained only from the mucous membrane of the small intestine, that it is probably a definite chemical entity, non-protein in character, common to all types of vertebrate animals and not specific for each type. These conclusions are supported by Enriquez and Hallion (8), Métivet (9) and Haramaki (10).

Atropine does not abolish the effect of secretin upon the pancreas [Fleig (11), v. Fürth and Schwarz (12), Bylin (13) and Chapman (14)].

Secretin can not be extracted in any considerable amount by water alone [Bayliss and Starling (6), Stepp (15)], but it can be extracted by other means than hydrochloric acid. For example, active preparations have been made by treating the

intestinal mucosa with strong soap solutions [Fleig (16], Witte-peptone [Gley (17)], chloral [Falloise (18)], and other agents. The product extracted is probably in all cases the same [Lalou (19)].

Popielski (20) denied that there is any specific substance present or produced in the small intestine that affects directly the activity of the pancreatic cells. He claimed that the presence of peptones in the blood and a lowering of blood pressure were the effective agents. Many secretin preparations cause a fall in blood pressure. At the same time the volume of blood flow through the pancreas is increased as the result of local vasodilatation which, however, follows rather than precedes the increase in pancreatic secretion and is not necessarily of equal magnitude [May (21), Burton-Opitz (22)]. There is considerable experimental proof that secretin is something separate from the substance that lowers blood pressure. Dale and Laidlaw (23) have succeeded in preparing by a new method a secretin that has powerful action and is relatively free from depressor substance. Launoy and Oechslin (24) have separated two different substances from duodeno-jejunal mucosa. One is an excito-secretory substance, without depressive effect, which stimulates the pancreatic secretion; the other is a powerfully depressing substance, which has little excito-secretory effect. The former is the hormone of Bayliss and Starling and the vasodilatin of Popielski is probably a mixture of both. Matsuo (25) has been unable to obtain a secretin preparation which did not cause some fall in blood pressure, but the degree of the fall and the activity of the various preparations were not at all proportionate. He does not believe that secretin and the depressor principle are identical for the additional reason that acid introduced into the duodenum will produce abundant pancreatic secretion without change in blood pressure.

In 1917 Bickel and his collaborators, Eisenhardt and Bjenab (26), in a series of articles entitled "Ein neues Pflanzensekretin," announced that spinach contains a secretin which acts on both the stomach and pancreas. Similar results were obtained by van Eweyk (27), van Eweyk and Tennenbaum (28), and Bickel and van Eweyk (29). These observations appear to have suggested the possibility of chemical identity or at least similarity of secretin and vitamin. On this point there are a num-

ber of reports of investigations which are in the main negative. Jansen (30) used the anti-beriberi vitamin from rice and found that it does not cause pancreatic secretion and hence is not identical with secretin. Voegtlin and Myers (31, 32) concluded that anti-neuritic vitamin prepared from brewer's yeast and secretin are closely related, if not identical. Cowgill (33) states that extracts of rice polish, wheat embryo, navy bean and yeast gave negative results on pancreatic secretion. Anrep and Drummond (34) and Downs and Eddy (35) have also shown that the idea that water soluble vitamin B and secretin are identical is unsupported by experimental evidence. A recent study of the question by Halliburton and de Souza (36) concludes that secretin extracted from spinach or manufactured by protein hydrolysis does not merit the name, that it has little effect, and can not play any part in digestion.

Accepting as the test for secretin stimulation of the flow of pancreatic juice it was early noted that secretin also increased the flow of bile. This was reported by Bayliss and Starling (6) and confirmed by Falloise (37), Enriquez and Hallion (8), Schäfer (38), who also noted a stimulating effect on the succus entericus, Downs and Eddy (39) and others. This opened the inquiry, which is still going on, as to what other organs or tissues of the body may show an alteration in activity under the influence of secretin.

In 1912 in an article by Alessandro (40) the statement is made that acid macerations of the secretin containing duodenal mucous membrane when introduced into the blood stream cause an increase in the amount of pancreatic juice, lachrymal fluid and aqueous humor secreted, and produce arterial and venous hyperemia of the fundus oculi. Mendel and Treacher (41) and Bainbridge (42, 43) have found secretin to cause an increased flow of lymph from the thoracic duct which is independent of alterations in general blood pressure. Bainbridge thinks this lymph is formed in the pancreas as a result of metabolic changes occurring in that organ during the secretion of pancreatic juice. Piticarin (44) found that secretin injected into the saphenous vein of an animal of the same species is a diuretic. Abelous and Soula (45) also found that dilute hydrochloric acid introduced into the duodenum or secretin given intravenously increased the secretion of urine. In addition they record increased

autolysis of liver and spleen, increased nitrogen katabolism, increased respiratory exchange and respiratory quotient, and hyperglycemia with decrease in the glycogen content of the liver. Cow (46) has shown that extracts of duodenal mucous membrane cause the appearance in the cerebro-spinal fluid of the autacoids of the pituitary gland.

In 1917 appeared the first of several articles by Downs and Eddy (47, 48, 49, 50) detailing the results of their experiments which showed that the number of both red and white corpuscles is increased in the circulating blood following the subcutaneous administration of secretin and that, as the result of the continued administration of secretin for eight weeks, the average number of red corpuscles is increased 34.90 per cent and of white corpuscles 37.56 per cent, with histological changes in the red marrow of bones indicative of increased production of blood corpuscles. These results, so far as the number of corpuscles present in the blood is concerned, were confirmed by Fujimoto (51) who also determined an increase in the catalase content of the blood.

Interest naturally is directed to any therapeutic value that may attach to such an agent as secretin. A practical application to the treatment of anemia was suggested by the effect of secretin on the number of circulating corpuscles. Downs and Eddy (35) report experiments on rabbits that were compelled to subsist on a diet consisting exclusively of broken polished rice for periods varying from three to six weeks. This caused a reduction in the red corpuscle count and a loss of weight. All the rabbits were then put on a full diet and some were given a subcutaneous injection of secretin daily. All the animals soon began to increase in weight and gradual improvement in the erythrocyte count developed. The difference, however, in the two groups was very striking. In the secretin rabbits the red corpuscle count rose rapidly and was back to the original level before the end of the third week. It continued to rise steadily and at the end of the eighth week was 27.3 per cent above the original. In the group not receiving secretin the count rose hardly at all during the first two weeks, and after that very gradually, so that at the end of eight weeks it had scarcely attained the original level. The weight curves are practically parallel until the end of the third week following the beginning

of the injections. From then on the secretin rabbits put on weight more rapidly so that at the end of the eighth week their average weight was 145 grams above the original, while that of the controls was still 108 grams below their original average. The more rapid improvement of the animals receiving secretin may have been due to two causes: the more rapid return of the blood count to normal and the improvement in the digestive processes from the stimulating action of secretin on production of pancreatic juice, bile and intestinal juice.

In this connection it may be stated that Williams and Beveridge (52) claim to have the records of over two hundred cases of diabetes and exophthalmic goiter in which the number of red corpuscles per cubic millimeter of blood was increased by the administration of secretin. Beveridge (53) describes the preparation of a stable secretin which may be used in making medicinal elixirs and administered by mouth. Carlson, Lebensohn and Pearlman (54), however, have shown that secretin given by mouth is quickly destroyed by gastric juice and by trypsin, and that after oral administration none is absorbed in active form. Subsequently Carlson, Kantor and Tumpowski (55) investigated the claims made by Beveridge for his preparation and found them to be without foundation. They state further that it should not be administered intravenously to man as it was found to contain protein degradation products and living bacteria.

So far as has been determined the only way to obtain the action of secretin is to administer it intravenously or subcutaneously, and if it is to be of any therapeutic value the securing of a harmless preparation is of the utmost importance. The method of Dale and Laidlaw (23) has been referred to, as has also that of Launoy and Oechslin (24). One of the most satisfactory is that of Stepp (15) in which the secretin obtained by extraction with 0.4 per cent hydrochloric acid is treated with alcohol and ether. His final product, a fine nearly white powder, is stable up to at least four months, is completely soluble in physiological saline solution, is practically free from protein and may be sterilized by boiling.

It was at first thought by Moore, Edie and Abram (56) that a neutralized acid extract of duodenum alleviated the diabetic condition by stimulating the pancreas to form its internal

secretion. A later report (57) by the same authors was to the effect that in the majority of cases the treatment was without avail. The same conclusion was reached by Bainbridge and Beddard (58), Foster (59) and Dakin and Ransom (60).

Up to the present the only apparent therapeutic uses of secretin are to increase the number of corpuscles in the circulating blood by stimulating the hematopoietic activity of the red bone marrow, and probably to improve digestion by increasing the flow of certain of the digestive juices. If our conception of pernicious anemia as a race between destruction and production of red corpuscles, with the former ultimately outstripping the latter, is correct, then secretin can be of no use. Nevertheless, there are undoubtedly many cases in which the conditions are similar to those existing in the starved rabbits to which reference has been made and in which beneficial results might be expected from the administration of secretin. It is to be hoped that further experimental and clinical studies will be carried out in an effort to define the therapeutic status of secretin.

SUMMARY

The literature on secretin is reviewed.

Personal experiments have shown that secretin has a markedly accelerating effect on erythropoiesis and general nutrition.

It is suggested that these observations may have an important clinical application.

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ON THE OCCURRENCE OF ACCESSORY PARATHYROIDS AND THEIR RELATION TO SURVIVAL OF ANIMALS AFTER PARATHYROIDECTOMY

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Recently there have appeared in the literature a series of articles (1) (2) (3) (4) (5) (6) (7) (8) (9) in which the authors claim to have controlled and cured tetany in "completely" parathyroidectomized dogs by various procedures. Having worked with parathyroidectomized animals, many of whom failed to show any post-operative symptoms of acute or chronic parathyroid insufficiency, and being aware of the frequent occurrence of accessories, it appeared to us that the statement of these writers, that their dogs were "completely" parathyroidectomized was misleading, inasmuch as it affected the interpretation of their results.

It is the purpose of this paper to present further evidence of the relative frequency of accessory parathyroids in cats, and to point out the possible physiologic rôle played by these masses following the ablation of the main glands.

The parathyroids have four points of origin. They are derived from the third and fourth branchial clefts, in close association with the thymus where development is very complex and the subsequent migration of tissue very marked. These factors greatly increase the possibility of accessories. The relation of migration of organs to the occurrence of accessories is illustrated also by the thyroid and interrenal glands.

Influenced mainly by the development of the thymus, the occurrence of accessory parathyroids may be widespread over the neck and upper portion of the thorax. Schaper (10) and Jeandelize (11) each found masses of parathyroid tissue near

the bifurcation of the common carotid and along the course of this artery in the sheep. Meyer (12) was able to find aberrant glands in all parts of the thoracic thymus of the sheep. Askanazy (13) reports the case of a young man in whom at autopsy an accessory parathyroid was found attached to the phrenic nerve. Thompson and Leighton (14) frequently found parathyroid tissue remote from the thyroid area in dogs. Forsyth (15) identified a parathyroid body hidden behind the sternum.

Supernumerary parathyroids are not uncommon. Klotz (16) found 12 in an adult dog. Thompson and Leighton (14) identified 8 in a dog. In a rat Togofuku (17) found 11 parathyroid masses. Erdheim (18) found 9 in a rabbit, and refers to the case of a man in whom he identified 8 parathyroids. Forsyth (15) was able to demonstrate an equal number in a monkey.

The occurrence of accessory parathyroids is common. In routine examinations of necropsy material, Marine (19) found them in 6 per cent of his dogs. According to Harvier and Morel (20) 50 per cent of cats have accessories, while Farner and Klinger (21) found them in almost all of the cats which they parathyroidectomized. Pepére (22) found accessory parathyroids in most of his rabbits. Erdheim (23) reports finding 4 accessories in a case of infantile myxedema.

By a very crude method we found 12 per cent of a series of cats to have accessory parathyroids within the thoracic thymus area.

PROCEDURE

Forty-two cat thymuses obtained in the routine autopsies in the laboratory, that had been fixed in formalin, for periods varying from a few weeks to about a year, were used. All of the animals were adults. Most of the thymuses had portions of the parietal pericardium and mediastinal lymph nodes attached. Transverse blocks were taken from each thymus and embedded in celloidin. Two sections of about 25 micra were cut from each block, the second section being about ⅛ of one mm. below the first. The sections were stained with hematoxylin and eosin.

In five (12 per cent) of the animals definite accessory parathyroids were found. In two cats two accessories were found within each thymus.

Undoubtedly if serial sections of the entire thoracic thymus had been examined a much higher percentage of accessory parathyroids would have been found, and if all the structures between the thyroid gland and the arch of the aorta had been sectioned, a still larger number would have been found. The crudity of our procedure emphasizes the frequency of accessory parathyroids.

DISCUSSION

Recent literature challenges the fact that the parathyroids are indispensable to life if the diet is carefully controlled and calcium salts administered. Luckhardt and Rosenbloom claim to have been able to control and cure tetany in "completely" parathyroidectomized dogs by the daily intravenous administration of Ringer's solution for about forty days. Luckhardt and Goldberg report being able to preserve the life of "completely" parathyroidectomized dogs by means of the oral administration of from 0.43 to 2.7 gms. calcium lactate per kilo body weight daily. Dragstedt and Peacock have kept parathyroidectomized dogs alive indefinitely by careful control of the diet, which diet changed the intestinal flora so that aciduric organisms predominated. The latter workers assume a more conservative attitude as to the completeness of their parathyroidectomies. They recognize the possibility that a few parathyroid cells under favorable conditions of diet and environment may function for the whole gland. To determine whether parathyroid removal in a given animal was complete they used the following physiological test: if the animal showed no tetany or depression after about three weeks, it was allowed to eat meat, and "the appearance of severe tetany after 48 hours was taken as an indication of the absence of accessory parathyroid tissue." However, we wish to point out the fallacy of such a test: an animal may have all four parathyroids intact and still show signs of tetany, and further, accessory parathyroid tissue may be frequently demonstrated in the thoracic thymus of cats which died of parathyroid insufficiency, showing tetany or depression or both. As Marine has pointed out "where there is anatomical insufficiency there is also physiological insufficiency, but this is not true conversely."

The work of Luckhardt and Rosenbloom, Luckhardt and Blumenstock, of Luckhardt and Goldberg, and of Dragstedt, and Dragstedt and Peacock emphasizes in an excellent manner the importance of good post-operative care, carefully controlled diet, and the administration of calcium in parathyroidectomized dogs. However, no evidence has been offered to show that the parathyroids are not indispensable to life whether this necessary activity consists of elaborating a secretion or neutralizing a toxin. It appears to us that by their respective procedures they have tided the animals over a critical period for a sufficient length

of time to permit the accessories to hypertrophy. The recurrence of signs of parathyroid insufficiency when an extra load is thrown on the glands or when the general condition of the animal is at all undermined (oestrus cycle, pregnancy, lactation, acid and sulphur administration, constipation) is due to the narrow margin of safety that such animals have when only accessories are functioning. To quote Marine, "in the absence of all parathyroid tissue, calcium salts will not save the animal's life, while in the presence of active parathyroid tissue calcium will save it."

To emphasize further the functional importance of accessories in general, and the extremely small amounts of functionally active tissue necessary for the maintenance of normal behavior under favorable conditions of nutrition and environment, we wish to refer to results following adrenalectomy in rabbits. It has been shown by many observers that in those animals which survive double adrenalectomy for 30 days or longer, accessory interrenal glands can be demonstrated in practically every instance.

We wish to thank Dr. David Marine for his assistance and helpful criticism in this work.

CONCLUSIONS

(1) Accessory parathyroids are present in man and animals in a large percentage of cases. By careful examinations of serial sections of the neck and thorax they probably could be demonstrated in almost every case.

(2) No evidence has yet been presented that mammals can survive complete parathyroidectomy.

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Editorial

AN OVARIAN HORMONE

Despite the fact that a tremendous number of articles on the incretory function of the ovary has appeared in medical and scientific journals throughout the world, very little clean cut information is available that can be confidently applied by the medical practitioner in his bedside work. Novak (1), in a critical review recently published in this journal, expressed himself, after years of experience as distinctly uncertain regarding the value of ovarian therapy. Although the feeling is very definite that there is a relation between the ovarian hormone and uterine functions, when one comes to the point of actually prescribing ovarian preparations he is, despite the sweeping claims of some endocrine enthusiasts, shooting in the dark. Occasionally he achieves brilliant success, but often only discouraging failure meets his efforts.

Perhaps the most important item of uncertainty has been the lack of a usable method of assaying ovarian products. While the more reliable manufacturers have done everything in their power to market satisfactory preparations the lack of a suitable standard for testing the efficacy of the preparations has proved a disconcerting obstacle.

For this reason a recent article by Allen and Doisy (2) from the Washington University Medical School at St. Louis on "An Ovarian Hormone," giving a clean cut method of testing its efficacy will be welcomed by endocrinologists throughout the world. The work of Stockard (3), of Long and Evans (4) and of Allen (5) has recently shown that the stage of the estrus cycle of mice, rats and guinea-pigs can be accurately established by microscopic examination of vaginal scrapings. This fact Allen and Doisy utilize in testing the ovarian hormone.

As a source of the hormone Allen and Doisy have used the liquor folliculi from the ovaries of hogs and cattle. It was noted that from 40-48 hours after the injection of this fluid into

mice and rats the animals were in full estrus. This was shown primarily by the condition of the vaginal smears, but the results were checked by an examination of the uterus and the vagina. These were in the typical hyperemic condition characteristic of estrus. When the contained cellular material and fluid proper were separated it was found that the hormone was in the liquid itself. It was found possible to fractionate the follicular liquor so that an apparently protein-free, active substance was obtained.

Not only were the uterine changes of estrus produced, but also growth in the mammary glands. Strikingly, during the induced estrus the animals mated in a normal manner. Some evidence was secured also of hastening of sexual maturity. In case of rats, puberty is marked by the attainment of patency of the vulva. Animals that had been injected with follicular extract attained puberty, as judged by this criterion, 22-40 days before they normally would have done so. At the time of publication the authors had not obtained results from extracts of corpora lutea, of whole ovary, or of the ovarian residue from materials obtained from three of the largest manufacturers of biological products, hence, as uterine or mammary stimulants these were all apparently inert. Further details of this interesting research are promised at an early date.

In view of the ease with which follicular fluid can be obtained and purified this new work suggests fascinating possibilities both from the standpoint of practical therapeutics and of the elucidation of numerous problems in the endocrinology of the female gonads.—R. G. H.

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*Cited from Allen and Doisy (2).

THE BROADER SIGNIFICANCE OF THE DISCOVERY OF INSULIN

The isolation of Banting and co-workers of the specific hormone of the Islands of Langerhans, and its clinical application to the treatment of diabetes mellitus, is universally acknowledged to be one of the most brilliant achievements in medical science and therapeutics. Their steadfast persistence in the face of many obstacles, and despite the discouraging failures of previous workers, merits unstinted praise and congratulation.

So long as efficient use of insulin is restricted to two or more daily injections, and so long as its use orally is futile, there will necessarily remain limitations to its widespread application in treating diabetes. Despite this many thousands of lives will be saved or prolonged that without insulin could not survive; and life will be made more bearable for other thousands, whose carbohydrate tolerance has become so diminished that their meager diet is a severe hardship.

The discovery of insulin includes a wider significance, however, than is noted above. It is to be remembered that the idea of employing pancreatic extracts in the treatment of diabetes mellitus originated many years ago and was a sound concept, based on secure scientific foundations. It had been proven by Minkowski and von Mehring in 1889, that the seat of the disease was in the pancreas. What more natural impulse than to remedy the defective, deficient secretion of the pancreas (more particularly the islet cells) than by administering pancreatic extracts—not only natural, but logical. Murlin, in a recent number of Endocrinology, relates the fascinating story of how one after another for over thirty years tried extract after extract, variously compounded and variously administered, only to be disappointed. What was the reaction of the medical profession? Very emphatically and even cynically, that pancreatic organotherapy in diabetes mellitus was both useless and foolish.

When, during these same years, disappointing results followed the use of pituitary preparations, ovarian extracts, testicular substances and adrenal medication in various maladies quite probably due to disease of these glands, where a replacement therapy seemed justified and indicated—then there de-

veloped a very reasonable, but nevertheless profound pessimism for organotherapy in general Only thyroid extract survived widespread condemnation. Fortunate indeed, for the entire field of endocrinology that one extract remained, whose potency was unquestioned and the administration of which by mouth was so simple and satisfactory.

When, despite these reliable, painstaking reports of failures (with all other gland products except thyroid), a large percentage of the medical profession persisted in indiscriminately and haphazardly prescribing these preparations, even unto pluriglandular ecstacy—the better and wiser portion of the profession became impatient, and the subject of organotherapy sank into deserved disrepute. What a heartening stimulus to the future, what a broad significance therefore attaches to the achievement of insulin! If the true specific hormone of the Islands of Langerhans can be isolated—what is to prevent similar accomplishment for the anterior lobe of the hypophysis, the ovaries, testicles and adrenal cortex? Indeed, there are lights on the horizon already, and a new dawn for endocrinology and humanity seems assured.—H. L.

Book Reviews

HET VITAMINERRAAGSTUK. H. Allaeys, Brugge, 1921. Drukkerij Excelsior. 57 p.

A small brochure in Flemish containing an incomplete and confused enumeration of the literature concerning vitamines. Some pages are devoted to the changes observed in the endocrine organs in avitaminosis.—J. K.

SKORBUT. L. Aschoff & W. Koch, Jena, 1919. Verlag G. Fischer, 122 pp.

The magnificent book with its admirable illustrations does not treat specifically of endocrinology, but it reports careful postmortem studies of 23 patients who died from scurvy in which special attention was given to the endocrine organs. The adrenals, pancreas, pineal, thyroid, parathyroids, thymus and testicle were closely examined in all cases. Only the adrenals and the thymus showed changes. In the adrenals the lipoid content was high. The thymus generally showed a more marked atrophy than in other persons of the same age under the same conditions.—J. K.

LECONS DE PATHOLOGIE DIGESTIVE. Prof. M. Loeper, Paris, 1919, 4 ed. Masson et Cie. Pp. 298.

These contributions on gastrointestinal pathology are of great value to medical men, especially to specialists who treat diseases of the stomach and the intestines. A fifth volume, of no endocrine interest, was published in 1922; the fourth edition, however, contains two chapters which are of endocrine importance. Dyspepsia of adrenal origin the author describes as a severe form due to adrenal insufficiency. The symptoms consist of slight pains which occur ½ to 2 hours after meals, loss of appetite, constipation, atony of the stomach, loss of flesh, a small amount of hydrochloric acid in the stomach and a small quantity of blood sugar. X-ray examination shows the existence of atony of the stomach and retardation of its emptying power; spasm of the pylorus is rare. In such cases injections of adrenalin are usually very successful. It is impossible to review here the experiments performed on men and animals showing the influence of the

adrenals and of adrenalin on the alimentary canal. I shall mention only that the author speaks of "insuffisance surrénale" as if its existence were certain; however, according to other investigators there seems to be more evidence against than in favor of the existence of such a disease. In his chapter on gaseous dyspepsia in patients with goiter the author points out that gastrointestinal disturbances are not rare in Graves' disease. The influence of the thyroid on the functions of the stomach has had little investigation; however, cases have been reported of aërophagia and of spasms of the oesophagus which seemed to be of thyroid origin and which rapidly improved when the thyroid was treated. Simple goiter with dyspepsia is also observed frequently. In explanation of these facts the author suggests a relation between the thyroid and its hormone on one hand and the involuntary nervous system on the other. Most stomach trouble found in diseases of the thyroid, however, originate in meteorism, due to aërophagia. The aërophagia is attributed to spasm of the muscular wall of the stomach, caused by irritation of the vagus. This is often combined with an increased irritability of the muscles in hyperthyroidism. In this way mechanical as well as toxic forms of stomach trouble in diseases of the thyroid may be explained.—J. K.

La Question des Vitamines. Dr. G. Houlbert, Paris, 1921. Librairie Arnette. 91 p.

Although this book is primarily concerned with vitamines, a considerable amount of material of endocrine interest is included, despite the fact that the text shows that the author is entirely unfitted to deal with such topics. For example, he lays much stress on a theory that function of the endocrine organs depends on the presence of vitamines. This is a type of facile generalization that has brought so much ridicule upon the literature of endocrinology. Even on the subject of the vitamines, themselves, the author is superficial and inaccurate. Although the book has received considerable favorable notice, in the opinion of the reviewer it is most noteworthy as an example of biological dilettantism.—J. K.

The Anatomy and Physiology of the Capillaries. Prof. August Krogh, Yale University Press, New Haven, 1922, pp. 276. Illus.

This book contains the lectures given by Professor Krogh at Yale under the Silliman Foundation. Their clear conciseness makes them admirable reading. The absence of techincal terminology comes as a pleasure to the specialist in other fields.

In addition to consideration of the distribution, contractility, structure, innervation, reaction to stimuli and permeability of the capillaries a chapter is devoted to the hormone control of this portion of the vascular system. The presence of an unknown substance in the blood, a function of which is concerned in the regulation of capillary contractility, is demonstrated. This substance has been termed the x-hormone. The effects of *pituitary* extracts upon capillary activity are described in some detail and the preliminary hypothesis is advanced that the x-hormone is produced by the pars nervosa or pars intermedia of the *hypophysis*. Reference to the effects of other endocrine products are to be found scattered throughout the lectures. The volume is to be commended both to the practitioner of medicine and to the scientist.—F. S. H.

CLINICAL TREATISE ON DIABETES MELLITUS. Marcel Labbé. Translated, revised and edited by C. G. Custom. William Wood & Co., N. Y., 1922. 382 pp. $5.

Cited, Chem. Abst., **17**, 1073.

DIE KRETINISCHE ENTARTUNG. Dr. Ernst Finkbeiner, Berlin, 1923. Springer. Pp. 432. Illus.

This monograph attacks the problem of the cretin from the point of view of anthropological measurements. Intensive studies were made of the long bones and skulls of cretins and their deviations from the normal are well described. As a compilation of the existing data on cretinism the monograph is a valuable contribution. Cretinism is defined as a form of endemic degeneration of European peoples. Its causal agent is mainly heredity. Hypothyreosis is considered as an accompaniment, not a cause of the condition. The arguments supporting this point of view are extremely weak and even the observational data would not bear critical analysis since the comparative measurements are too few to allow such a definite and far-reaching conclusion. Space is lacking for a consecutive analysis of the fallacious opinions expressed. When an author starts out with the idea that animal experimentation can never throw light on the problem of cretinism he naturally omits reference and study of the observations obtained from such investigation. Notwithstanding these defects, which after all have their use in that they are stimulative of thought, the monograph serves a good end in bringing together many scattered data on a subject of importance.—F. S. H.

SEX AND DEVELOPMENT OF SEX CHARACTERS. M. Zawadowsky, Moscow, State edition, 1922. 255 pp., with 20 colored plates and 94 figures in the text. Russian with 20 pages of German summary.

The author has performed during 1919 and 1920, under the incentive of Steinach's feminization and masculinization experiments, an extensive series of experiments with castration, feminization, masculinization and hermaphrodization in the fowl. There were 109 experiments on fowl, 14 experiments on pheasants and 3 on ducks. He fully confirmed the results of Goodale and of Pézard. The castrated cock and the castrated hen were exactly alike. Like Tandler, Pézard and Lipschütz, the author concludes that there is an asexual type and that those characters which, like the plumage and the spurs of the cock, are independent of the sex gland, represent characters of this asexual type. Castration experiments on pheasants gave similar results. The statements of Goodale were confirmed in feminization and masculinization experiments. The conclusion is drawn that the tissues of the male and female are at the beginning identical and that they undergo male and female differentiation only under the influence of sex hormones. The statements of Zawadowsky made on the appearance in castrated hens of male characters which depend on sex hormones, as the male comb and sexual instincts, are of great interest. In these experiments a development of the right-sided ovarian rudiment was seen. Also these experiments fully corroborate those of Goodale and of Pézard. Zawadowsky suggests that the ovary has also a "hetero-sexual potency." In agreement with what was observed by Goodale, the author stated that testicular grafts into *normal* hens were mostly unsuccessful. The graft took in only one out of 6 cases. In two cases the testicular graft took, though the ovary was regenerated. There was in these cases hypertrophy of the comb, but the latter was not so erectile as in the normal cock. The testicular graft had no influence on other sex characters, as sexual instincts and plumage, even when the generative part of the testicle was developed. On the contrary, transplantation of ovary into normal cocks caused feminization as to the plumage. In order to study whether the sexual hormones of different species are identical the author transplanted into castrated cocks of different species sex glands of pheasants. These experiments could not be finished on account of political events in Russia; but they indicate, nevertheless, that there is no "specious specifity" of sexual hormones.

The observations of Zawadowsky on castrated mammals are also of great interest. He observed different castrated specimens of antelopes in the great zoological park of Nova-Ascania in

Southern Russia (Portax-Pictus, Cervicapra, Conochetes Gnu, Cervus Lama, Capreolus Caprea). There is in the male Portax-Pictus after castration a transformation of the grey male coat into the brown female one; the transformation takes place at the first moult after castration. If horns have already grown when castration is performed, they are preserved. Zawadowsky concludes that also in mammals there is a soma identical for both sexes. In many places he speaks of an identical soma, at other places of an equipotential soma. He fully agrees here with the suggestion Lipschütz made on this question in different papers in 1918 and 1919. The term "equipotential soma" might be more convenient than the term "asexual soma" that Lipschütz used as being less extreme and leaving the door open for changes which might become necessary on account of new facts.

Zawadowsky reports also on experiments on sex limited inheritance from a hormonic aspect. In 1919 Lipschütz attempted to explain from a hormonic aspect the fact that female sex characters are transmitted by the father and male characters by the mother. It was assumed that the parent transmits to its offspring the characters of the asexual type, i. e., the capacity to react to sexual hormones in a manner characteristic for a given species; so the parent always transmits the capacity to react both in a male and a female manner; it depends upon the sex specific hormones of the offspring whether the reaction of the soma will be male or female. In crossing experiments the male generative cells will transmit characters of the asexual soma of the strain of the father and by this the capacity is transmitted to react to female hormones in a manner characteristic for the *female* of the *father's* strain and *vice versa.* A full confirmation of Lipschütz' point of view is given by some experiments of Zawadowsky. He crossed a black male Langshan with a female barred Plymouth Rock; there were in the first generation barred cocks and plain black hens. Castration of the black hen of the F_1 then caused the appearance of the male plumage of a Langshan cock and not of that of a Plymouth Rock cock. Evidently the females of the F_1 inherit the characters of the neutral form of the strain to which the male parent belongs.

The author's classification of sex characters is very similar to that of Pézard and of Lipschütz, though he has not taken into consideration the literature from 1913 and 1922. Zawadowsky gives important, independent experimental evidence for many of the theses of Steinach, Sand, Goodale and Pézard, and in addition, some new experimental facts. The experiments related in the book are extremely numerous; full protocols with photographs and complete numerical data are given. (A statement in the German summary appears to have been misleading on this point.)

The experiments have been carried out under most difficult circumstances and the author deserves great admiration for having continued scientific work. His experiments were performed in the zoological park of Nova-Ascania in Southern Russia between the Red and the White fronts under the constant oppression of corrupt military forces.—A. Lipschütz.

Abstract Department

(ADRENALIN, HYPOPHYSIS.) The effect of various other factors than blood urea concentration on the rate of urea excretion. Addis (T.) & Drury (D. R.), J. Biol. Chem. (Balt.), 1923, **55**, 629-638.

In rabbits all the changes in the rate of urea excretion which cannot be explained by variation in blood urea concentration may be experimentally duplicated by the subcutaneous injection of adrenalin and of pituitrin. Those rates which are greater than the blood urea concentration would warrant can be produced by adrenalin, and those which are lower by pituitrin. Further, these substances, as far as their renal action is concerned, are directly antagonistic, for if the appropriate doses of adrenalin and pituitrin are mixed together before they are injected the rate of urea excretion is unchanged. The results induced by pituitrin in rabbit can be reproduced in man. In man it is not feasible to reproduce all of the adrenalin effects. It differs from pituitrin in that with increasing doses there comes a point where the augmenting influence on the rate of urea excretion becomes less marked, and as the dose is increased the effect is reversed and the rate is decreased.

—F. S. H.

Spasm and ADRENALIN. Aiya (T.), Jikwa Zasshi, 1922, No. 268 (Sept.), abst., Jap. Med. World (Tokyo), 1923, **3**, 37, 53.

After injecting adrenalin into more than 60 subjects with ekiri and dysentery, the author decides that the change in the suprarenal capsule is not an important factor in the development of spasm.

—R. G. B.

Cholesteremia and the ADRENAL glands in the rabbit (Sui rapporti fra colesterina e capsule surrenali nel coniglio). Alessandri (C.), Riv. crit. di clin. med. (Firenze), 1921, **22**, 397, 409.

(ADRENALS) Three cases of cutaneous discoloration—two of Addison's disease and one of hemolytic jaundice. Anders (J. M.), Med. Clin N. Am. (Phila.), 1923, **6**, 849-859.

A report of 2 cases of Addison's disease with remarks on differential diagnosis.—I. B.

Three cases of acute and subacute ADRENAL insufficiency following malaria (Trois cas de insuffisance surrénale aiguë et subaiguë consécutifs au paludisme). Antonin (P.), Marseille Méd., 1922, **59**, 68-73.

Digitalin and ADRENALIN-CHLOROFORM syncope (Digitaline et syncope adrénalino-chloroformique). Bardier (E.) & Stillmunkes (A.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 593-594.

Excitation of the splanchic nerve in the dog. Attempt to dissociate the effects of the vaso-motor fibers from those of the ADRENALIN secreting fibers (Excitation du nerf splanchnique chez le chien. Essai de dissociation des effets de cette excitation sur les fibres vasomotrices et adrénalino-sécrétrices). Barillet (H.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 509-510.

Effects of optical isomers of ADRENALIN bases on glycemia (Effets de bases adrénaliques isomeres optiques sur la glycémie). Bierry (H.), Rathery (F.) & Levina (Mlle. L.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 3-5.—T. C. B.

Influence of the ADRENAL glands on DIABETIC hyperglycemia (Influences des glandes surrénales sur l'hyperglycémie diabétique). Boeggild (D.), Compt. rend Soc. de biol. (Par.), 1923, **88**, 816-818.

(ADRENALS) Scleroderma. Bolten, Nederl. Tijdschr. v. Geneesk, (Haarlem), 1922, **66 (II)**, 2981-2984.

Bolten considers scleroderma as due to insufficiency of the adrenals, and the low blood pressure, the cardiovascular asthenia, the pigmentation and other symptoms seem to uphold this theory. Cases are reported in the literature of a combination of scleroderma and Addison's disease. In some cases differential diagnosis between these two diseases may be impossible. However, as cases of scleroderma with **Graves' disease** have also been described, it is possible that scleroderma does not always have the same cause.—J. K.

Analgesic power of ADRENALIN (Le pouvoir analgésique de l'adrénaline). Bonnefon, Gaz. hebd. d. sc. méd. de Bordeaux, 1922, **43**, 94.

The use of adrenalin 1:1000, in ophthalmic toxic neuralgia just before the crisis is beneficial. With injection at the beginning the crisis is shortened without becoming less acute; injection during the crisis has no effect.—F. S. H.

ADRENALIN and chronic glaucoma. Ocular hypertension by vaso-constriction (Adrénaline et glaucome chronique. L'hypertension oculaire par vaso-constriction). Bonnefon, Compt. rend. Soc. de biol. (Par.), 1923, **88**, 433-434.

Sudden death due to ADRENAL insufficiency. Probable adrenal encephalopathy (Mort subite par insuffisance surrénale. Encéphalopathie surrénale probable). Bonnin, Secousse & Ichon, Gaz. hebd. d. sc. méd. de Bordeaux, 1922, **43**, 82-83; see also, J. de méd de Bordeaux, 1922, **52**, 191.

Tuberculosis of adrenals was observed. Two days before death the patient had hemiplegia and difficulties with speech, followed by hemiparesis.—F. S. H.

Total caseous tuberculosis of the ADRENALS with adrenal insufficiency of rapid development; no pigmentation (Tuberculose caséeuse totale des surrénales avec syndrome d'insuffisance surrénale à marche rapide sans pigmentation). Bouchut, Gensollen & Morénas, Soc. méd. d. hôp. de Lyon, 1922, Dec. 5; abst., Presse méd. (Par.), 1922, **30**, 1078.

The authors report the case of a man of 25 years, with a previous history of tuberculosis, who was taken suddenly, in the midst of a period of asthenia and weakness, with an acute attack, similar to intoxication or peritonitis. The suffering was intense; the arterial tension was low, 55/25. No pigmentation of the skin or of the mucous membrane was seen. Death occurred in a very short time. At autopsy tuberculous granulations were observed on the lungs; the 2 adrenals were entirely transformed into shells comprised of caseous pus, no normal structure being present. This acute form of adrenal insufficiency is similar to cases reported by Sergent and Léon Bernard. Such pseudo-peritoneal manifestations are well known, although rare, and are not usually accompanied by visible pigmentation.—R. G. H.

ADRENAL insufficiency of rapid termination (Insuffisance capsulaire à terminaison rapide; absence de mélanodermie; lésions caséeuses massives des surrénales). Cade & Barbier, Soc. méd. d. hôp. de Lyon, 1922, Dec. 5; abst., Presse méd. (Par), 1922, **30**, 1078.

A case is reported of adrenal insufficiency which developed rapidly in 3 or 4 months. No pigmentation, cutaneous or mucous, was seen. There were purulent lesions of the two adrenals which were so extensive that no part of the gland could be recognized, even at histologic examination. There were also extensive pericapsular lesions, and, as usual, it was impossible to know to what cause to attribute the asthenia and hypertension; neither could it be explained why melanoderma did not exist in this case.—R. G. H.

Absorption and action of ADRENALIN (Uber Adrenalin-Resorption und Adrenalin-Wirkung). Cahn (R.), & Steiner (B.), Jahrb. f. Kinderh. (Berl.), 1922, **99**, 44-48.

In children in whom subcutaneous adrenalin injections produce a rise in the blood pressure, a rise in the blood sugar invariably occurs. A marked rise in blood sugar is also produced in children in whom no rise in the blood pressure follows the injection. In such children intravenous injection of adrenalin does not produce a pressure rise. Variations in absorption of the adrenalin are not, therefore, the cause of the variation in the response, as Csepai has

suggested from a study of the blood pressure reaction. Apparently a dissociation of the actions of adrenalin on blood pressure and blood sugar exists.—Med. Sc., **7**, 528.

The brain and ADRENAL function (Das Gehirn und die Nebennierenfunktion). Ceni (Carl), Arch. f. Entwcklngsmechn. d. Organ. (Berl.), 1921, **49**, 491-509.

Extirpation of one or both cerebral hemispheres in the pigeon causes hypertrophy of the adrenals in direct proportion to the trauma. This is noticeable on the fifth or sixth day after the operation and is maximal about the thirtieth to fortieth day, amounting to as much as three or four times the usual volume of the gland. There is a simultaneous atrophy of the **gonads** as a whole, but hypertrophy of the **interstitial cells.** Histologically both the cortex and medulla of the adrenals show hypertrophy and hyperplasia of both glandular parenchyma and stroma. These changes are accompanied by dysfunction of the adrenals. The staining reaction with hematoxylin and the chromaffine reaction of the medulla are partly lost. All these changes are considered to be due to the destruction of special centers in the brain. Reintegration of the adrenals may gradually occur parallel with the restitution of the sexual glands.—A. T. R.

(ADRENALIN) The influence of some pharmacodynamic agents on the oculo-cardiac reflex and on the solar reflex (Influence de quelques agents sur le réflex oculo-cardiaque et le réflex solaire). Claude (H.), Tinel (J.) & Santenoise (D.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1347-1349.

The subcutaneous injection of 1 mg. of adrenalin causes the solar reflex to appear in a subject in whom compression of the abdomen had no effect. The accentuation of the solar reflex is clearer than with atropin, whereas the frequently observed diminution of the oculo-cardiaque reflex is very feeble. The preponderating action is excitation of the sympathetic system.—T. C. B.

Antagonism between ADRENALIN and cinchona. Clerc (A.) & Pezzi (C.), Arch. d. mal. du cœur [etc.] (Par.), 1923, **16**, 1-16.

Clerc and Pezzi extended their former studies on the antagonism between epinephrin and quinin on quinidin, cinchonin and cinchonidin in which they found a similar action to quinin. They all paralyze the bulbar center of the pneumogastric nerve, while epinephrin excites it. The acceleration of the heart action caused by small amounts of these drugs is due to excitation of the accelerators, not to paralysis of the pneumogastric, which requires larger doses. —J. Am. M. Ass., **80**, 1180.

ADRENALIN and tuberculosis (Adrénaline et tuberculose). Colbert & Durand, Gaz. hebd. d. sc. méd. de Bordeaux, 1922, April 23; abst., Arch. méd. belges (Brux.), 1922, **75**, 631.

The rôle of adrenalin in the treatment of tuberculosis was studied. Adrenalin differs in action from the pharmaco-dynamic and from the quantative points of view; of natural adrenalin (levogyrous) and synthetic adrenalin (levogyrous and dextrogyrous) the levogyrous variety alone is active. The authors do not particularly recommended either kind, but advise the continuous administration of the same product in any given subject. The intravenous method of administration should not be used except in extreme cases. Although theoretically the digestive juices modify the composition of the adrenalin, administration by mouth is advised. In this case, however, it should be given in large doses at intervals of 2 hours daily at the utmost.—R. G. H.

(ADRENIN) The free sugar in the liver and its significance for carbohydrate metabolism. Cori (K. F.), Poucher (G. W.) & Cori (G. T.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 522.

The influence of adrenin and iletin on the free sugar content of the liver and the blood sugar is described.—J. C. D.

ADRENAL insufficiency and the incoercible vomiting of pregnancy (Insuffisance surrénale et vomissements incoercibles de la grossesse). Crousse (R.) & Leyman (F.), Ann. de l'Inst. chir. de Brux., 1921, **22**, 10-16.

Solution of ADRENALIN for injections (Solution d'adrénaline pour injections). Debucquet (L.), J. de pharm. et chim. (Par.), 1922, **25**, 136-319; abst., Ber. ü d. ges. Physiol. (Berl.), 1922, **14**, 192.

The author introduces for the preparation of adrenalin solution a saturated aqueous benzoic acid solution. A method of preparation is described.—R. G. H.

The importance of the ADRENAL glands in the action of pilocarpine, physostigmine and strychnine. Edmunds (C. W.), J. Pharmacol. & Exper. Therap. (Balt.), 1923, **20**, 405-418.

The effects of pilocarpine, physostigmine and strychnine upon cat's uterus and intestine were studied in the presence of the adrenal glands and after their removal. The author concludes that the increased epinephrin output following the administration of these drugs may very considerably alter their action.—G. E. B.

The effect of EPINEPHRIN upon the blood picture. Edmunds (C. W.) & Stone (Ruth P.), J. Pharmacol. & Exper. Therap. (Balt.), 1923, **21**, 210-211.

The response of the rabbit to epinephrin was found to be similar to that of the dog as regards effect upon the hepatic vein, portal pressure and liver volume. In dogs elimination of the liver from the circulation did not alter the polycythemia produced by epinephrin. Ergotoxin prevented the increase in red blood cells. The

authors suggest as a probable explanation of the polycythemia the action of epinephrin upon the bone marrow.—G. E. B.

Changes in the ADRENALS after ablation of the liver (Nebennierenbefunde nach Leberexstirpation). Elias (H.), Klin. Wchnschr. (Berl.), 1922, **1**, 1948.

After liver extirpation in animals the principal symptoms are adynamia, hypoglycemia and diarrhea, symptoms which are also found in Addison's disease. To explain these symptoms we must think of hypoglycemia as being caused by destruction of the most important quantity of glycogen in the body. Administration of sugar, therefore, should improve temporarily the condition of the animal. In Elias' experiments, however, no improvement was noted when sugar was injected intravenously in animals without a liver. The author tried to determine whether, as in Addison's disease, changes in the adrenals after ablation of the liver were responsible for the adynamia. He found that the adrenals contained only about one-third of the adrenalin found in normal animals; in most cases the adrenals showed a very slight staining with chromates after the operation. Section of the splanchnic prevented these changes. The author states that it is probable that the changes in the adrenals after ablation of the liver are caused by nerve impulses.—J. K.

ADRENALS and antigens (Nebennieren und Antigene). Emmerich (E.), Verhandl. d. deutsch. path. Gesellsch. (Jena), 1921, **18**, 213-215.

See Endocrin., **6**, 122.

Malignant disease of the ADRENALS with report of a case. Fuller (H. G.), J. Urol. (Balt.), 1922, **7**, 77-85; see also, Tr. Am. Ass. Genito-Urin. Surg. (Balt.), 1921, **14**, 227-235.

A brief case report.—J. C. D.

Action of repeated subcutaneous injections of ADRENALIN on the rabbit (Etude de la glycosurie adrénalinique—action de la répétition des injections sous-cutanées d'adrénaline chez le lapin). Garnier (M.) & Schulmann (E.), J. de Physiol. et de path. gén. (Par.), 1923, **21**, 92-103.

Repeated small injections of adrenalin are well borne by rabbits. They become accommodated to toxic doses if the doses are progressively increased; thus amounts which would produce death in a few hours will be perfectly well tolerated. The tolerance persists for some time after stopping the injections. Repeated injections after interruption cause a marked wasting. Under the influence of small doses repeated for a long period, glycosuria diminishes and disappears, but each injection is followed by hyperglycemia, as marked for the last as it was for the first doses. This is true for some animals. For others glycemia permanently increases so that

there is increased glycosuria. Death may occur under these conditions. If one injects increasing quantities of adrenalin the strong doses do not cause more marked hyperglycemia than the weak. —W. B. C.

Section of the splanchnic and ADRENALIN glyosuria in the frog (Section du splanchnique et glycosurie adrénalique chez la grenouille). Gautier (C.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1400-1401.

Destruction of the splanchnic and its ganglia does not prevent the glycosuria caused by injection of adrenalin in the frog.—T. C. B.

Successive action of eserine and ADRENALIN on the pupil of the frog's eye in vivo (Actions successives de l'ésérine et de l'adrénaline sur la pupille de l'oeil de grenouille, in vivo). Gautier (C.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1402-1403.

In the frog adrenalin dilates the pupil to its maximum after myosis has been induced by eserine, but eserine is without effect when the pupil has been dilated by adrenalin.—T. C. B.

ADRENALECTOMY in the frog (La produzione di calore nella rana in diverse condizioni sperimentali. Nota V. Researches alla rana privata delle capsule surrenali). Gayda (D. T.), Arch. di sc. biol. (Napoli), 1923, **4**, 93-105.

The author experimented on both partially and completely adrenalectomized frogs. In both cases the production of heat decreased immediately from 30 to 40%. After this diminution, in the animals in which the adrenal glands were completely destroyed the diminution of heat continued until death resulted. In the case of partial destruction of the adrenal glands, the diminution stopped for a time and then went on until death resulted. In both cases the author attributes the first diminution of heat to the result of the operation. In cases of complete destruction the second diminution of heat was due, according to the author, to the disappearance of the tonic excitement of the sympathetic system, to the alteration of the material change of the hydrocarbons, and finally to the phenomenon of asthenia and muscular weakness. The behavior in the production of heat in the case of the partial removal of the adrenal glands shows that the parts of the adrenal glands which remained intact were able for a time to compensate for the destruction of the other parts. After a while the remaining parts also probably suffered necrosis.—A. C. M.

Fats and lipoids of the cortex of the ADRENAL in fasting animals (Grassi e lipoidi della corteccia surrenale nel digiuno). Giglioli (B.), Arch. per le sc. med. (Torino), 1922, **45**, 24.

In fasting animals the lipoids of the cortex of the adrenal are diminished. The great quantities of sudanophil material which

under such conditions are seen in the same situation are not lipoids, but either neutral fats or cholesterol derivatives. Their almost violet color in specimens stained by nile-blue sulphate is very much in favor of the second supposition.—Med. Sc., **8**, 59.

Technic of ADRENALECTOMY (Zur Technik der Nebennierenexstirpation). Girgolaff (S. S.), Zentralbl. f. Chir. (Leipz.), 1922, **49**, 1361-1363.

Consequences of the destruction of the ADRENALS in the toad and in the frog [Consecuencias de la destruccion de las capsulas suprarenales en el Bufo marinus (L) Schneid y el Leptodactylus ocellatus (L)]. Giusi (L.), Rev. Assoc. méd. argent. (Buenos Aires), 1921, **34**, 15-19 (Sec. Soc. de Biol.).

See Endocrin. 5, 782.

Fatal doses of various poisons in ADRENALECTOMIZED and HYPOPHYSECTOMIZED toads (Dosis mortales de varios venenos en sapos suprarrenoprivos e hipofisioprivos). Giusti (L.), Rev. Assoc. méd. argent. (Buenos Aires), 1921, **34**, 36-43 (Sec. Soc. de Biol.).

The sensibility to toxins is normal in toads without the hypophysis. In adrenalectomized toads, however, there is greater sensibility to morphin and veratrin but less to atropin and curare.

—B. A. H.

The vascular relations of the ADRENALS and their physiological value from the point of view of the suprarenal secretion of adrenalin (La fonction des surrénales—V. Les relations vasculaires surréno-rénales et leur valeur physiologique au point de vue de la sécrétion surrénale d'adrénaline). Gley (E.) & Quinquaud (A.), J. de Physiol. et de path. gén. (Par.), 1921, **19**, 504-514.

The authors discuss the evidence of anastomoses between the adrenal venous trunk and the perirenal plexus. They confirm earlier observers in finding that anastomoses are present, but declare that they are rare and of relatively little importance. Nevertheless, they admit that double adrenalectomy is preferable to ligature of the lumbo-adrenal veins if one desires to suppress adrenal function.—W. B. C.

Action of ADRENALIN on the THYMUS (Action d'adrénaline sur le thymus). Goldner (J.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 545-548.

A histological description of the thymus after daily injections of adrenalin for 30 days, with the conclusion that there is here an interglandular relation.—T. C. B.

(ADRENALIN) Alterations of the H-ion concentration in the blood of the portal vein and the vena hepatica (Untersuchungen über den Mechanismus der Adrenalinhyperglykämie. I. Mitteilung:

Ueber Aenderungen der Wasserstoffionenkonzentration im Blute der Pfort-ader und vena hepatica). Gottschalk (A.) & Pohle (E.), Arch f. exper. Path. u. Pharmakol. (Leipz.), 1922, 95, 65-74.

Adrenalin hyperglycemia is the consequence of passive hyperemia in the liver (Neubauer), caused by the adrenalin and at the same time by a formation of acid, especially lactic acid, in the blood (Elias), and of the effect of these 2 factors upon the liver. Experiments were performed on rabbits. Blood was taken by heart puncture and out of the liver vessels. Adrenalin was administered subcutaneously and as a continuous intravenous infusion. Determination of the H-ion concentration was made by a gas chain. Perfusion of isolated livers with blood containing adrenalin changed the H-ion concentration only if adrenalin were added in amounts larger than are usually found in living animals. Acidification is due, therefore, to no direct alteration of the serum by adrenalin, but a complex occurrence in the entire organism. Application of adrenaline in doses which cause hyperglycemia caused considerable increase of the H-ion in the portal blood and still more in the blood of the vena hepatica. After adrenalin injection the increase of blood sugar began 10-20 minutes sooner than the H-ion increase in the portal blood. Hyperglycemia endured more than 4 hours longer than the H-ion augmentation in the portal blood. It is possible that the H-ion increases relatively late in the portal blood because the carbonates are formerly saturated with CO_2.—A. B.

(ADRENALIN) Is there a genetic connection between the change of H-ion concentration in the liver stream and hyperglycemia? (Untersuchungen über den Mechanismus der Adrenalinhyperglykämie. II. Mitteilung: Besteht ein genetischer Zusammenhang zwischen der Aenderung der Wasserstoffionenkonzentration im Leberstromgebiet und der Hyperglykämie?). Gottschalk (A.), & Pohle (E.), Arch. f. exper. Path. u. Pharmakol. (Leipz.), 1922, 95, 75-92.

Temporary compression of the portal vein in rabbits causes increase of the H-ion concentration within this vessel and distinct hyperglycemia. This is probably a consequence of local acidosis, for alkali taken by mouth (Ca. 100 cc. of a 5% solution of $NaHCO_3$) diminishes the hyperglycemia considerably without surmounting the physiological degree of alkalescence in the portal vein blood. Temporary ligature of the vena porta 15 minutes after subcutaneous adrenalin injection causes a decided check of the blood sugar increase during the closure. Injection of adrenaline during ligation of the portal vein does not influence the blood sugar. Peroral administration of a bicarbonate solution in a concentration which does not destroy the adrenalin markedly hinders the adrenalin hyperglycemia without altering the H-ion in the portal blood. Even the H-ion concentration of the liquids in the liver tissue seems to be augmented by adrenalin, for the H-ion increases within the vena

hepatica much more than in the vena porta, although arterial blood is continually flowing into the liver. The authors conclude that the increase of the H-ion concentration in the portal blood and in the liver caused by adrenalin is one of the conditions which effects adrenalin hyperglycemia, probably in such a way that the acidity causes a swelling of the liver cells in which the adrenalin tends to cause a reaction between glycogen and diastatic ferment.—A. B.

The effect of EPINEPHRIN on excised strips of frogs' digestive tracts. Gruber (C. M.), J. Pharmacol. & Exper. Therap. (Balt.), 1923, **20**, 321-357.

The activity of the digestive tracts of recently caught and starved frogs is entirely similar. The longitudinal muscle of the esophagus is more sensitive to adrenalin than the circular muscle. Weak solutions produce tonic contraction of both coats of the esophagus, increase the tonus and in some cases the rate and force of contractions of both coats of the stomach, small intestine, rectum and cloaca. Stronger solutions produce relaxation in all these organs. What appeared to be the cardiac and pyloric sphincters responded in like manner; the ileocolic sphincter sometimes responded similarly, but in most cases it was thrown into tonic contractions by strong as well as weak concentrations. Strips taken from different parts of the small intestine responded similarly to equal concentrations of adrenalin. The lower part of the alimentary canal appears to be more sensitive to adrenalin than the circular muscle of the esophagus. The author concludes that the thoracic-lumbar autonomic nervous system must supply all the organs and sphincters except possibly the ileocolic with both tonic augmentative and inhibitory nerve fibers.—G. E. B.

Action of ADRENALIN on the striated muscular system (Acción de la adrenalina sobre el sistema muscular estriado). Guglielmetti (J.), Rev. Asoc. méd. argent. (Buenos Aires), 1922, **35**, 324-328.

See Endocrin., **7**, 103.

(ADRENALIN) Severe vomiting of pregnancy (Un cas de vomissements graves au cours de la gestation). Guillemet (P.), Gynéc. (Par.), 1923, **22**, 111-112.

Report of the beneficial results of treatment by adrenal extract. Six capsules containing 0.1 gm. of Choay's preparation were given. —F. S. H.

(ADRENIN) A study of the pulmonary circulation by the transillumination method. Hall (H. L.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 483-485.

Pithed cats were used. Among other observations the author noted a decrease in the size of the pre-arterioles and arterioles after injections of adrenin.—J. C. D.

The internal secretion of ADRENALIN and its significance in pathology (Sur la sécrétion interne d'adrénaline et son intéret pour la pathologie). Hallion (L.), Rev. prat. de biol. [etc.] (Par.), 1922, **15**, 1-8.

The action of ADRENALIN in the DEPANCREATIZED dog (Action de l'adrénaline chez le chien dépancréaté). Hédon (L.), Soc. d. sc. môd. et biol. de Montpellier [etc.], 1923, March 23; abst., Presse méd. (Par.), 1923, **31**, 340.

From the results of 2 experiments performed on totally depancreatized dogs (later verified at autopsy) which presented normal diabetes, it was concluded that the subcutaneous injection of adrenalin causes increased hyperglycemia and glycosuria. The D/N ratio was much higher than in ordinary experimental pancreatic diabetes.—R. G. H.

ADRENALIN and the blood picture (Suprarenin und weiszes Blutbild). Hess (F. O.), Deutsches Arch. f. klin. Med. (Leipz.), 1922, **141**, 151-164; see also, Klin. Wchnschr. (Berl.), 1922, **1**, 147; abst., Ber. ü. d. ges. Physiol. (Berl.), 1923, **18**, 359.

ADRENALINEMIA (Zur Adrenalinaemie Frage). Hess. (O.), München. med. Wchnschr., 1922, **69**, 1297-1300.

The author examined the blood of healthy persons and of several patients. In the peripheral arterial or venous blood he found neither adrenalin nor any substance with vasoconstrictor properties.
—J. K.

ADRENALS) Malignant hypernephroma in childhood. Hoag (L. A.), Am. J. Dis. Child. (Chicago), 1923, **25**, 441-454.

A girl of 4¼ years gave a history of 3 convulsive attacks followed by periods of lethargy within the month prior to admission. She was apathetic; the facial expression was stolid; the eyes staring; the voice deep; and she had a prominent mons veneris, large labia minora and majora and a clitoris of adult size with a redundant prepuce. Hyperthrichosis was of the male type of distribution. The breasts were normal. Examination showed a tumor of the right flank. Postmorten findings showed a malignant hypernephroma of the right adrenal cortex; arterio-sclerosis of the pial vessels, multiple superficial cortical softening of the brain, and pathological cellular accumulation in the region of the stalk of the pituitary; the thyroid, which was normal, was small with abundant colloid; the ovaries showed an unusual number of large cystic follicles but no evidence of menstruation. A review of the literature is appended.
—M. B. G.

(ADRENALIN) Pharmacology of the involuntary nervous system (Zur Pharmakologie des vegetativen Nervensystems). Hoffmann (R.), Wien. Arch. f. inn. Med., 1923, **5**, 543-552.

The author studied the influence of different combinations of pilocarpin and adrenalin on perspiration, salivation, and sugar metabolism. He concluded that the effect depends on the state of irritability of the involuntary nervous system caused by the injection of the first drug, and that the quantity and the method of administration of the second drug is of no real importance.—J. K.

(ADRENALIN-PITUITRIN) The pigmentary effector system. II. Hogben (L. T.) & Winton (F. R.), Proc. Roy. Soc. (Lond.), 1922, **94B**, 151-162.

The only reagents found to induce melanophore contraction apart from caffeine, were adrenalin, tyramine, ergotoxine and cocaine. In addition to pituitary extract apocodine and nicotine in quantities more than adequate to produce general motor paralysis gave melanophore expansion. There is no direct evidence to show a nervous control of pigment responses in Amphibia. It is suggested that possibly the synchronous color changes of Amphibia in response to normal environmental stimuli are governed by endocrine influences.—G. E. B.

The relation of the ADRENALS to the circulation. Hoskins (R. G.), Physiol. Reviews (Balt.), 1922, **2**, 343-360.

From a review of the literature it is concluded that the adrenal glands have a definite pharmacologic relation to the circulation by virtue of their production of adrenin. Adrenin causes stimulation of the heart, vasoconstriction in the splanchnic and cutaneous regions and dilatation in the skeletal muscle. Increased or decreased blood pressure may result, depending upon dosage and various accessory factors. Adrenal extirpation with its resulting circulatory collapse is not entirely, if at all, due to adrenin lack, since it cannot be long forestalled by administration of the drug and it does not ensue when adrenin secretion is reduced below detectable limits. The slow development of the symptoms of epinephrectomy also indicates that they are not due to sudden failure of adrenin as a stimulatory substance. Direct experimentation shows that adrenin often depresses sympathetic irritability. Marked symptomatology develops while the sympathetic system responds well to stimulation. If adrenin deficiency is a factor, it probably operates in the effector rather than the conductor mechanisms. The adrenals are stimulated to secretion by splanchnic nerve irritation, hence are supposedly under central control. Evidence of the existence of an adrenal center immediately caudad to the corpora quadrigemina has been reported. The preponderance of the evidence indicates that adrenal depression is evoked by stimulation of the vagus or depressor nerves and augmentation by asphyxia, pain and emotional excitement. This augmentation results in a mass shifting of the blood from the skin and viscera to the organs involved in neuromuscular

exertion. The cortex is probably the indispensable part of the adrenal. The medulla apparently serves merely to reinforce the sympathetic system in times of stress.—Author's Abst.

The rôle of ADRENALIN in the hypertensive effects produced by excitation of the splanchnics or by bulbar puncture (Papel de la adrenalina en los efectos hipertensivos producidos por la excitación del nervio esplácnico o por picadura bulbar). Houssay (B. A.), Rev. Asoc. méd. argent. (Buenos Aires), 1922, **35**, 329-332.

See Endocrin., **7**, 104.

Comparative importance of medullary and cortical parts of the ADRENALS (Importancia comparada de la medula y corteza de la suprarrenal). Houssay (B. A.) & Lewis (J. T.), Rev. Asoc. méd. argent. (Buenos Aires), 1921, **34**, 254 (Sec. Soc. de Biol.).

See Endocrin., **6**, 417.

The ADRENALS and pancreatic DIABETES (Suprarrenales y diabetes pancreatica). Houssay (B. A.) & Lewis (J. T.), Rev. Asoc. méd. argent. (Buenos Aires), 1921, **34**, 261-265 (Sec. Soc. de Biol.).

Ablation of the pancreas produces diabetes in dogs deprived of the right adrenal and the medulla of the left adrenal, consequently without adrenalin.—B. A. H.

The functions of dogs deprived of the ADRENAL medulla (Las funciones de los perros privados de la médula suprarrenal). Houssay (B. A.) & Lewis (J. T.), Rev. Asoc. méd. argent. (Buenos Aires), 1922, **35**, 129-137.

See Endocrin., **7**, 91.

The rôle of ADRENALIN in the hypertension produced by exciting the splanchnic nerve (Nuevas comprobaciones sobre el papal de la adrenalina en la hipertensión producida al excitar el nervio esplancnico mayor). Houssay (B. A.) & Marconi (A. P.), Rev. d. cír. méd. argent. y centro estud. de med., 1922; abst., Rev. Sud.-Am. (Buenos Aires), 1923, **6**, 70.

See Endocrin., **7**, 456.

The influence of ADRENALIN on the formation of antibodies (Die Wirkung des Adrenalins auf die Antikörperbildung). Hrma (J.), Casop. lék. česk. (Prague), 1922, **61**, 1217.

Hrma injected intravenously 0.05 mg. adrenin per kg. body weight into 5 rabbits. Neither increased nor decreased formation of a hemolytic amboceptor within the serum was observed. Rabbits were treated with adrenin (method of Hayashi) and the bactericidity against bacillus anthracis was noted. The bactericidity of the serum of such animals seemed somewhat but not importantly decreased. Only one of the several animals treated showed an

increase of agglutination titer. Adrenin had no influence upon the complement. There was no experimental proof that adrenin affected the production of the antibodies in the blood serum.—A. B.

(ADRENALIN) Technique of investigating local cutaneous vasomotor reactions (Technique de la recherche des réactions vasomotrices cutanées locales). Juster (E.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1329-1331.

Observation of the reaction of cutaneous nerves is equivalent to examining the sympathetic system of the region under examination. One method of doing this is to inject adrenalin intradermally. One cubic milligram of a 1/1000 solution causes a central white zone of anemia with "goose flesh," the width of a franc piece, surrounded at the periphery by a red zone one-half centimeter in width It disappears in an hour and a half. Pilocarpin gives a similar reaction. Other methods of testing are described.—T. C. B.

On the concentration of the blood and the effect of histamine in ADRENAL insufficiency. Kellaway (C. H.) & Cowell (S. J.), J. Physiol. (Lond.), 1922, **57**, 82-99.

The experiments described were to determine the parts played by the adrenal cortex and medulla respectively, in causing the concentration of blood and increased susceptibility to histamine found to accompany acute adrenal insufficiency. Adult cats were used, and the adrenal medulla was destroyed by radium emanations introduced into the medulla in closed capillary tubes. To determine the amount of medulla remaining at different periods during life, the paradoxical pupil reaction to anoxemia and histamine was used. The results show that histamine causes increased output of adrenalin by a direct effect upon the adrenals. The concentration of blood in animals dying of adrenal insufficiency is due to cortical defect. The altered concentration reaction to small doses of histamine is due to medullary effect. The subcutaneous injection of adrenalin antagonizes the action of histamine in causing concentration of the blood, and masks the hypersensitiveness to histamine. —T. C. B.

ADRENAL tumors of horses and cattle. Kimura (T.), Sei-I-Kwai M. J. (Tokyo), 1921, **40**, 3-8; abst., Arch. méd. belges (Brux.), 1923, **76**, 266.

Adenoma of the ADRENAL (Adenom der Nebennieren). Krecke, München. med. Wchnschr., 1922, **69**, 1098.

A short note. The case is reported of a woman who had vomiting spells for 7 years. There was slight brown pigmentation of the skin. The patient had a masculine appearance and had a beard, although she had normal female sexual organs. During her dis-

ease she menstruated only once. Postmorten examination disclosed adenoma of an adrenal, not touching the kidney.—J. K.

Curves of action of levorotatory and racemic synthetic ADRENALIN (Courbes d'action des adrénalines levogyre et racémique de synthèse). Launoy (L.), Compt. rend. Soc. de biol. (Par.), 1923, **88,** 848-852.

ADRENALIN in nephritis (A propos des escarres adrénaliques). Lavenant, Soc. de méd. de Par., 1922, Oct. 28; abst., Presse méd. (Par.), 1922, **30,** 980.

The author observed that he could not give even a small dose of adrenalin to subjects with nephritis who were free from urinary albumen and who possessed peripheral vasoconstriction.—R. G. H.

The ADRENALS and morphin intoxication (Suprarrenales e intoxicacion morfinica). Lewis (J. T.), Rev. Asoc. méd. argent. (Buenos Aires), 1921, **34,** 266-268 (Sec. Soc. de Biol.).

See Endocrin., **6,** 418.

Susceptibility of ADRENALECTOMIZED rats to toxins (Sensibilidad de las ratas suprarrenoprivas a los toxicos). Lewis (J. T.), Rev. Asoc. méd. argent. (Buenos Aires), 1921, **35,** 131-133 (Sec. Soc. de Biol.).

See Endocrin., **6,** 282.

The problem of the ADRENALS (Das Nebennierenproblem). Lichtwitz (L.), Klin. Wchnschr. (Berl.), 1922, **1,** 2245-2249.

Few absolute facts are known as to the function of the adrenal glands. The author gives a critical discussion of some of the fantastic theories held by many writers.—J. K.

Does the reaction to ADRENALIN obey Weber's law? Lyon (D. M.), J. Pharmacol. & Exper. Therap. (Balt.), 1923, **21,** 229-235.

In decerebrated cats the vascular response to repeated equal intravenous doses of adrenalin chloride is constant only when the resting level of the blood pressure at the time of injection remains the same. When the amount of adrenalin injected is increased arithmetically the blood pressure responses do not follow in proportion but bear a logarithmic relationship to the stimulus, obeying the Weber-Fechner Law.—G. E. B.

(ADRENALS) Implantation of nerves in suprarenal capsules. Maragliano (D.), Riforma med. (Napoli), 1922, **38,** 1133-1136 (November 27).

Since free transplants of suprarenal capsules are absorbed in a few weeks, Maragliano tried to prevent it by implantation of splanchnic or spinal nerves into the organ. Yet the nerves did not proliferate, if he left the capsules in place, nor if he transplanted them

with the nerve. The absorption of the transplanted capsule was not prevented by this proceeding.—J. Am. M. Ass., **80**, 285.

Hypofunction of the ADRENAL glands and rachitis. Massaglia (A. C.), J.-Lancet (Minneap.), 1922, **42**, 301-306.

A preliminary report suggesting that experimental adrenal deficiency in pregnant animals may give rise to rachitic changes. —R. G. H.

The weight of the ADRENALS (Das Gewicht der Nebennieren). Materna (A.), Ztschr. f. Konstit. (Berl.), 1923, **9**, 1-5.

The combined weight is given of the 2 adrenals of 25 normal adults (21 males and 4 females, 19 to 68 years of age) with accidental sudden death. Most of the males were young adults. The weight of the 2 glands varied from 5.15 to 13 gms., most of them being below 10 gms.; this is somewhat lower than is reported by the literature, as indicated by a table giving the weights obtained by others in over 1000 cases. Some references are given.—A. T. R.

Intracardial injection of ADRENALIN and subcutaneous injection of lobelin in asphyxia pallida of the new born child (Intrakardiale Adrenalininjektion und subkutane Lobelininjektion zur Bekämpfung der Asphyxia pallida des Neugeborenen). Mikulicz-Radecki (F.), Zentralbl. f. Gynäk. (Leipz.), 1922, **46**, 1574-1579.

Intracardial injection of 0.5 mg. of suprarenin, combined with a subcutaneous injection of 3 mg. of lobelin, gave splendid results. —J. K.

Sull' ADRENALINA. Milliam, Chim. e med. mod. (Milano), 1922, **2**, 10-15.

The OVARY and ADRENALINE hyperglycosuria. Mochizuki (K.), J. Jap. Gyn. Soc., 1921, **16**, No. 9; Jap. Med. World, 1922, **2**, 46.

The injection of adrenaline causes a more marked hyperglycosuria after experimental oöphorectomy, atrophy of the ovary in the menopause, or functional derangement of the ovaries by x-rays. —Physiol. Abst., **7**, 555.

Experimental studies on the SUPRARENAL cortex. Mori (S.), Nihon Biseibutsugakukai Zasshi (Kyoto), 1923, **17**, 227-265.

In the rabbits fed with fats, chemical and histological changes in the suprarenal cortex were looked for. The cortex, especially the zona reticularis and striata, was enlarged, and the amount of neutral fats and cholesterin ester was increased, while cholesterin and other lipoids were present in small amounts. Lipemia and cholesterinemia were also found in accordance with their amounts contained in the suprarenal. Hence the suprarenal seems to be an organ related to the metabolism of neutral fat and cholesterin. The above changes were never found in the suprarenal medulla.—S. K.

Studies on ADRENALIN discharge. Morita (M.), Fukuoka Ikadaigaku Zasshi (Fukuoka), 1923, **16**, 1-59.

The author determined the adrenalin content in the suprarenal of dogs, rabbits, and guinea-pigs under various conditions. If the blood pressure was lowered by nitrites or toxins, the adrenalin content was lowered, owing to its increased discharge. This fact did not appear after cutting the sympathetic nerve. A decrease of the adrenalin content was also found after electrical stimulation of the splanchnic nerve. Degenerative atrophy and fibroid degeneration were found not only in the medulla but also in the cortex after cutting the sympathetic. The author thinks that in experiments on the suprarenal cutting of the postganglionic fibres to the gland is preferable to that of the splanchnic nerve since the vasodilatation of its area may be avoided. The increase of the adrenalin discharge caused by a fall of the blood pressure may be prevented by an intraperitoneal injection of adrenalin, although it has no such effect if injected intravenously or subcutaneously. In Weil's disease the adrenalin content in the suprarenal diminishes remarkably, and it has been proved by experiments on 26 patients that the intraperitoneal injection of adrenalin acts very beneficially.—S. K.

Action of ADRENALIN on the curve of hyperglycemia (Influencia de la adrenalina sobre la curva hipercalcémica provocada). Muñoz (J. M.), Rev. Asoc. méd. argent. (Buenos Aires), 1921, **34**, 166-172 (Sec. Soc. de Biol.).

See Endocrin., **6**, 282.

The ADRENALIN content in the SUPRARENAL of the tuberculinized guinea-pigs. Nakada (K.), Kekkaku (Tokyo), 1923, **1**, 50-64.

Tubercle bacilli were injected into guinea-pigs, subcutaneously, intravenously or into the abdomen. After several days the pigs were killed and the adrenalin content in the suprarenal was determined by Sudo and Inouye's method. A diminution was found in most cases, especially in the late stages and in the severe cases of the disease. The same was also found after tuberculin injection.

—S. K.

Action of ADRENALIN and of suprarenal extract on muscular excitability (Action de l'adrénaline et de l'extrait surrénal sur l'excitabilité musculaire). Obré (A.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 585-588.

A typical myasthenia gravis pseudoparalytica, combined with scleroderma and weakness of the ADRENAL system (Eine atypische Form der Myasthenia gravis pseudoparalytica kombinert mit Sklerodermie und Schwäche des Adrenalsystems). Patrzek (F.), Ztschr. f. d. ges. Neurol. u. Psychiat. (Berl. u. Leipz.), 1921, **63**, 155-162; abst., Schweiz. med. Wchnschr. (Basel), 1922, **52**, 1238.

On the basis of the characteristic microscopic picture in a bit of excised muscle the diagnosis of myasthenia gravis was made in a 30 year old woman. The case was atypical in that the ordinary electric reaction was lacking, as was atrophy of the shoulder girdle and quick fatigability. Death occurred, as is usual, from respiratory failure. At autopsy marked changes were found in the diaphragm and intercostal muscles. Scleroderma was present in the face, hands and feet; this first appeared about two years before the myasthenia symptoms. The author believes that the "adrenal system" was weak because the patient showed pigmentation of the face (but not of the mucosa of the mouth and throat), lowered blood pressure and hypoglycemia; the latter two symptoms were not influenced by adrenalin injection. At autopsy the adrenals as well as the other endocrine glands were found intact. The author believes that the findings as a whole indicated an endocrine etiology.
—R. G. H.

(ADRENALS) Addison's disease. Peiper (H.), Ztschr. f. Urol. (Leipz.), 1923, **17**, 40-50.

Peiper recommends roentgen-ray examination of the kidney region after insufflation of oxygen into the bed of the kidney. He advocates removal when the suprarenal capsule is the seat of a unilateral tuberculous process.—J. Am. M. Ass., **80**, 1350.

Disturbed formation of adrenalin in the ADRENALS due to external causes, and its biological significance (Störungen der Adrenalinbildung in den Nebennieren unter äusseren Einflüssen und ihre biologische Bedeutung). Peiser (B.), Ztschr. f. d. ges. exper. Med. (Berl.), 1922, **28**, 234-264.

See Endocrin., **6**, 667.

(ADRENALS) Vitiligo in subjects with Addison's disease (Le vitiligo chez les addisoniens). Piéri (J.), Thèses de Par., 1922; abst., Presse méd. (Par.), 1922, **30**, 940.

Vitiligo is seen in diseases of the incretory glands, whether these affections are due to syphilis or not, particularly in certain cases of Addison's disease. This relationship gives the melanoderma a particular aspect characterized by the presence of three tones of coloring and a symmetrical topography. Diagnosis is easy. In vitiligo, as in the melanoderma of Addison's disease, the pigmentary disorders are sometimes accompanied by a trophic disturbance involving scleroderma. To explain the pathogenesis of vitiligo the author supposes that it is through the sympathetic system that pigmentation is caused to reappear to the surface of the skin; disturbance of this function by irritation of near-by ganglia and nerve fibers or by endocrine disorders is the determining factor in the pigmentation seen in Addison's disease.—R. G. H.

The action of ADRENALIN (Uber die Wirkung des Adrenaline). Platz (O.), Klin. Wchnschr. (Berl.), 1922, **1**, 1895-1896.

Intravenous injection of adrenalin nearly always first raised then lowered the blood pressure. When the blood pressure was first increased, 0.005 mg. would produce a marked reaction; in many persons even 0.001 mg. was enough to produce a change of blood pressure. When given subcutaneously the minimum active dose was 0.1 mg. When atropine or papaverin were given together with adrenalin the rise of blood pressure was much higher than after injection of adrenalin alone. After intravenous injection of adrenalin 94% showed an increased pulse rate; 6% a lowered one. No case was noted in which the pulse rate remained unaltered. The same was seen after subcutanous injection. Respiration became more frequent in 80% of the subjects and less in 20% after intravenous administration. Blood sugar was always increased, but glycosuria was seen only when adrenalin was administered subcutaneously and then only in 4% of the cases. Intravenous injection caused a rise of the NaCl in the blood; the influence of subcutaneous injections was not studied. The number of red and white corpuscles was increased by both means of administration. The number of neutrophil cells usually became smaller, especially after intravenous injection. In several cases a diminished number of eosinophil cells was seen, but no general rule could be formulated concerning them. Rectal administration of adrenalin was absolutely inactive and the custom of adding adrenalin to enemas must therefore be considered as useless.—J. K.

The action of ADRENALIN on the pneumococcus (Recherches expérimentales sur l'action de l'adrénaline sur le pneumocoque). Puscariu (E.) & Nitzulescu (I.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 540-541.

Experiments with ADRENALIN (Weitere Versuche über Adrenalin). Proebsting, Klin. Wchnschr. (Berl.), 1922, **1**, 2018.

The author describes a colorimetric method of finding adrenalin in a solution of 1:100 millions. The biological method enables us to detect still smaller quantities. When the posterior part of a frog is sensitized by perfusion of a solution of adrenalin for a long period it shows reaction when a solution of 1: ½ milliard of adrenalin is added. If possible, therefore, this reaction is preferred.—J. K.

Glycemic reaction to the intramuscular administration of EPINEPHRIN. Raphael (T.) & Parsons (J. P.), Arch. Neurol. & Psychiat. (Chicago), 1922, **8**, 172-178.

Blood sugar determinations were made after the intramuscular injection of 1 mg. of epinephrin in 3 normal subjects, 9 cases of dementia praecox and 6 of manic depressive insanity; of the latter,

3 were in the excited phase and 3 of the depressive type. In the normal persons the blood sugar curve reached its maximum in from 30 minutes to 1 hour with subsidence in 3½ hours. The reaction pit or point of minimal glycemia is definitely below the initial fasting level following which there is a definite rebound to approximately this level. In the psychotic subjects the general contour is essentially the same as in normal persons for the first 3½ hours, following which, however, the depressed and dementia praecox subjects become variant in that a further gradual drop is noted with slight or no indication of rebound, a deviation which conceivably may be of basic metabolic import.—C. E. N.

Effects of repeated transplantation of whole SUPRARENALS into young doves. Riddle (O.) & Minoura (T.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 456-461.

The adrenal tissue from other doves was placed subcutaneously and repeated grafts were made since the transplants were gradually resorbed. When compared with the controls the experimental birds showed clearly an earlier sexual maturity in the female, as indicated by the appearance of the first egg. An enlargement of the testes, a reduction in the size of the ovaries, and a retardation of sexual maturity in the male also occurred, but the authors do not feel that their evidence is conclusive on these points. The descendants of the experimental birds were normal in every way.—J. C. D.

Changes in EPINEPHRIN secretion during cerebral anemia. Rogoff (J. M.), J. Pharmacol. & Exper. Therap. (Balt.), 1923, **21**, 211-212.

A study of the rate of epinephrin secretion during and following the production of cerebral anemia in the cat. Blood was taken from the adrenal vein and assayed on rabbit intestine segments. Definite increases (3 to 8 times the initial rate) were shown in the output during the early part of the occlusion of the head arteries. This increased rate fell to the initial rate or below after occlusion. The conclusion is made that during the period of vasomotor response in cerebral anemia the rate of epinephrin secretion may be increased, but this has no material effect on the character or the degree of the vasomotor response to the anemia brought about by the bulbar centers.—G. E. B.

Observations on the supposed relation of the ADRENAL glands to the blood-pressure response during cerebral anemia. Rogoff J. M.) & Coombs (H. C.), Am. J. Physiol. (Balt.), 1923, **64**, 44-74.

There is no significant difference in the responses to occlusion of the head arteries between normal animals and those in which epinephrin secretion is interfered with. Adrenal activity is not necessary for eliciting any of the vasomotor effects resulting from acute cerebral anemia.—T. C. B.

(ADRENAL) Morbus Addisoni. Rosenow, Klin. Wchnschr. (Berl.), 1922, **1**, 502.

Data reported elsewhere.—J. K.

ADRENALINEMIA. San Martin (G.), Crón. méd.-quir. de la Habana, 1922, **48**, 170-172.

Behavior of the ADRENALS in experimental scaldings (Sul comportamento delle capsule surrenali nelle scottature). Salvioli (G.), Sperimentale. Arch. di biol. (Firenze), 1922, **76**, 190.

Experiments were made by scalding the skin of guinea-pigs. According to the extension and severity of the scaldings, the changes of the blood circulation of the adrenals varied from a simple congestion to hemorrhages and blood coagulation. In the cells of the cortex the neutral fats, lipoids, and pigment were increased; in those of the medulla the chromaffin substance was diminished. The same results were obtained in guinea-pigs in which one adrenal had been previously removed.

—Med. Sc., **8**, 232.

Changes of arterial pressure following subcutaneous injection of ADRENALIN and its significance [Variazioni della pressione arteriosa indotte dall' iniezione sottocutanea di adrenalina e loro significato. (Nota preventiva)]. Sanguinetti (A.), Malatt. d. cuore, 1921, **5**, 93-99; abst., Ber. ü. d. ges. Physiol. (Berl.), 1922, **12**, 265.

The author believes that the individual differences in adrenalin effect are due to the slowness of absorption. It was observed that 4 vagotonics reacted with a rise in blood pressure and an immediate and decided bradycardia, while 4 others showed tachycardia before the slowing of the pulse. This symptom may be of some diagnostic value also.—R. G. H.

(ADRENALS) Combination of scleroderma with Addison's disease, with Raynaud's disease and with tendovaginitis crepitans (Kombination von Sklerodermie mit Addisonscher Erkrankung; Kombination von Sklerodermie mit Raynaudscher Krankheit und Tendovaginitis crepitans). Scholz (K.), Klin. Wchnschr. (Berl.), 1922, **1**, 1948-1949.

The author observed a man of 41 with scleroderma. The thyroid was small. Ingestion of 100 gm. of glucose did not cause glycosuria. The author believed this to be a complication of Addison's disease with scleroderma. The body was darkly pigmented, but the mucous membranes did not show any special color. Blood pressure was 106 mm. Blood sugar determinations are not given. The other cases reported are not of endocrine interest.—J. K.

Origin of tuberculosis of the ADRENAL glands. Schwarz (F.), Ztschr. f. Tuberk. (Leipz.), 1922, **37**, 169-184; ibid., 1923, No. 4 (Jan.); abst., Presse méd. (Par.), 1923, **31**, 108.

Schwarz reports 20 cases of tuberculosis in which the adrenal glands were examined anatomically and histologically; 14 of the subjects were children of 3 months to 6 years; the 6 others were adults of 18 to 64 years. In 17 cases there was general miliary tuberculosis and in 14 of these, that is 83%, there existed miliary tuberculosis of the adrenal glands. It was concluded, therefore, that in general miliary tuberculosis the adrenals are frequently involved. Schwarz noted that the right adrenal was more often affected than the left. Miliary tuberculosis seems to have a different effect in the cortex and in the medulla. Two forms are observed: one is characterized by uniform caseation, while the other shows epitheloid and giant cells. Between the two there is a transitory phase. Usually, the older the subject, the more numerous the giant cells. The tuberculous bacilli are more abundant in the uniformly caseous points. Histologically, lesions of the adrenals in miliary tuberculosis correspond to changes genetically analogous to other organs (spleen, liver, kidney, lungs). The chronic tuberculosis of the adrenal glands, of which the author found 65 cases in 19,061 autopsies assembled from January 1, 1904, to May 30, 1922, was always secondary. Chronic tuberculosis of the adrenals is seen more rarely than miliary.—R. G. H.

The blood picture after ADRENALIN injection. Shimizu (J.), Hokuetsu Igakukai Zasshi (Nigata), 1922, **37**, 692-731.

In blood from the ear-lobe of patients, and in that taken from the mesenteric or the splenic vein of rabbits, the number of the leucocytes was increased after the injection of adrenalin. This increase was found in all leucocytes, but was especially prominent in the lymphocytes. Such increase was also largely confirmed in splenectomized rabbits. Opposite results were obtained in the blood taken from the mesenteric vein. Hence the cause of the increase is probably not attributable only to a contraction of the spleen produced by adrenalin, but also to changes in the distribution of leucocytes in the blood vessels.—S. K.

(ADRENIN) Influence of ischaemia on infection. Sollmann (T.) & Brody (J. G.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1922, **19**, 400-401.

The authors show that if one ear of a rabbit is rendered bloodless by injecting adrenin and then both ears are wounded and the wounds infected the injected ear will be much less resistant to the infection and will recover much more slowly than the uninjected ear.

—J. C. D.

The supposed relation of the ADRENALS to reflex volume changes in the denervated limb. Stewart (G. N.) & Rogoff (J. M.), Am. J. Physiol. (Balt.), 1923, **63**, 436-478.

It is said that the constriction of the denervated limb following (passive) dilatation, elicited by stimulation of the central end of the sciatic, which some observers think evidence of increased output of epinephrin, has no such significance. The reaction can be obtained when the glands have been eliminated.—T. C. B.

The blood changes and their relation to the spleen, which are caused by pilocarpin, atropin and ADRENALIN. Takaori (S.), Chugwai Iji-Shimpo, 1922, No. 1019; No. 1020 (September); cit., Jap. Med. World (Tokyo), 1922, **2**, 347.

Morphology of the ADRENAL glands. Takeya (O.), Kyoto Igakkwai Zasshi, 1922, **19**, No. 3 (April); cit., Jap. Med. World (Tokyo), 1922, **2**, 263.

The influence of vaccines on ADRENALIN discharge. Tokumitsu (M.), Igakuchuo Zasshi (Tokyo), 1923, **20**, 1363-1373.

The author determined the adrenalin content of the blood and of the suprarenal of rabbits after an injection of some vaccines. About 30 to 90 minutes after the injection, the adrenalin discharge was increased, while its amount varied with the sort of vaccines. Carboxyl acids and normal horses' serum had no influence on the adrenalin discharge. These results were not altered by cutting the sympathetics, demonstrating that this action of vaccines is not central, but peripheral in origin.—S. K.

The alterations of the organs, owing to the disappearance or the diminution of the function of the SUPRARENAL body, especially on the relation of the suprarenal cortex to thyroid. Tokumitsu (M.), Tohoku Igakukai Zasshi (Sendai), 1922, **6**, 85-102.

Gradual destruction of the adrenals of rats was succeeded by transplantation of Flexner's (rat) cancer beneath the capsule of this body. At different times in the course of destruction, histological variations in the thyroid and pituitary body, etc., were examined. A parenchymatous goitre was found when the function of the suprarenal cortex was entirely, or seriously disturbed, but a colloid goitre if this disturbance was slight, the destruction of the medulla being without influence in any case. Variations in histological types of goitre may therefore result from degrees of variations in the suprarenal cortex, that is, a slight destruction of the latter causes the thyroid to become charged with more abundant colloid material, and a serious one causes a multiplication of the epithelial cells. In one case of moderate destruction, a mixed type of these two variations was found. If the function of the suprarenal body was entirely destroyed, the principal cells of the pituitary

multiplied and became dark, while if the function of the suprarenal cortex was maintained to some extent, the multiplied cells were not so dark. Atrophy and diminution of the eosinophile cells were found with a serious destruction of the suprarenal medulla, but this was not the case if the medulla was in normal condition, even when the cortex was completely destroyed.—S. K.

The influence of the immune serums upon ADRENALIN discharge. Tokumitsu (M.), Igakuchuo Zasshi (Tokyo), 1923, **20**, 1450-1460.

The immune serums excite adrenalin discharge. This action may be attributed to the immune bodies contained in the serums, because normal horses' serum has no such action. In almost all cases this action is peripheral in origin. The adrenalin discharge was more pronounced if the serum used was warmed up to 80-100° C.—S. K.

Influence of ADRENAL cortex preparations as well as other endocrine organs on the adrenalin secretion. Tokumitsu (B.), Tokyo Iji-Shinshi, 1922, Nos. 2291, 2292 (August).

The cortical layer preparation not only inhibits adrenalin secretion, but also produces a substance that neutralizes adrenalin. The infusion itself has vasodilator action. Normal and Basedow's **thyroid** facilitates adrenalin secretion, but this action does not manifest itself if the visceral sympathetic nerves have been severed. By cutting the vagus nerves, adrenalin secretion is suspended for about a quarter of an hour. The cortical layer of the suprarenal capsules counteracts the thyroid. Infusion of spleen inhibits adrenalin secretion and has a vasodilator action. Infusion of the posterior lobe of the **pituitary** body inhibits adrenalin secretion, but that of the anterior lobe enhances the secretion, while both have vasodilator action. The **pineal** body and the **corpus luteum** enhance the secretion, but the **thymus** has no effect.—Jap. Med. World, **2**, 345.

Reality of HYPERADRENALINEMIA due to excitation of the splanchnic nerve. Reply to Zunz and Govaerts (Réalité de l'hyperadrénalinémie par excitation du nerf splanchnic. Réponse à MM. Zunz et Govaerts). Tournade (A.) & Chabrol (M.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1159-1161.

A reply to their critics, maintaining the correctness of their previous findings.—T. C. B.

Determination of the quantity of ADRENALIN secreted by the suprarenal during excitation of the splanchnic; calculation of the amount of hyperadrenalemia thus created (Détermination de la quantité d'adrénaline secrétée par la capsule surrénale pendant l'excitation du splanchnique; calcul de taux de l'hyperadrénalinémie ainsi créée). Tournade (A.) & Chabrol (M.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 6-7.—T. C. B.

Optimum conditions of absorption of ADRENALIN by the digestive tract (Conditions optima d'absorption de l'adrénaline par voie digestive). Trias (A.) & Dorlencourt (H.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1189-1190.

The authors have shown that adrenalin is absorbed from the digestive tract, as evidenced by the hyperglycemia produced after it has been introduced into the stomach. By reason of its therapeutic value they have sought for the conditions which favor its absorption. It is found that the more concentrated the solution the more readily it is absorbed, but the maximum hyperglycemia is delayed. Also rendering it isotonic by Ringer's solution favors absorption.

—T. C. B.

Lesions of the ADRENAL capsule in a case of sudden death of a new-born (Lésions de la capsule surrénale dans un cas de mort subite chez un nouveau-né). Vallois & Roume, Bull. Soc. d'obst. et de gynéc. (Par.), 1923, **12**, 82-83; see also, Gynéc. (Par.), 1923, **22**, 175.

The ADRENAL glands in their relation to modern medicine. Weiler (R.), Am. J. Clin. M. (Chicago), 1921, **28**, 544-548, 618-623, 697-704.

A general review of the anatomy, physiology, embryology, and chemistry of the adrenal gland with a summary of its principal clinical aspects. Nothing new.—A. T. R.

(ADRENIN) Observations on substances which increase the excitability of the vomiting centre. Weiss (S.) & Hatcher (R. A.), J. Pharmacol. & Exper. Therap. (Balt), 1923, **21**, 220.

The excitability of the vomiting centre in cats and dogs was tested by the local application of small amounts of many drugs including epinephrin. In quantities of 0.01 mg. per kilogram weight epinephrin produced emesis.—G. E. B.

The ADRENALS of tuberculous patients (Die Nebennieren tuberkulöser Individuen). Wiesner, Wien. klin. Wchnschr., 1923, **36**, 352-353.

In the adrenals of patients with tuberculosis changes may occur showing regenerative processes with degeneration of the cortex, but without real development of tubercles. The author considers these changes as of "tuberculotoxic" origin.—J. K.

Diseased conditions in a case of disturbed tonus of the AUTONOMIC NERVOUS SYSTEM (Les états de déviation du tonus des systèmes nerveux de la vie organo-végétative). Guillaume (A. C.), Bull. méd. (Par.), 1922, **36**, 200-207; abst., Ber. ü. d. ges. Physiol. (Berl.), 1922, **14**, 48.

After studying the observations made by Eppinger and Hess on the diseased state of the body following vagotonia, and keeping

in mind the pharmacological symptoms of the autonomic nervous system, the author gives a systematic survey of the pathological conditions which accompany the disturbance of equilibrium of this system. From the possible combinations of hyper- and hypo-tonia of the sympathetic and parasympathetic systems, the most important conditions from a practical point of view are hypertonia of the sympathetic on one hand, and sympathetic hypotonia and vagotonia on the other. These conditions the author describes in great detail with especial regard to their symptomatology and etiology. Among other things, incretory disturbances are discussed. Critical considerations of the diagnostic methods and therapeutic measures are also included.—R. G. H.

Studies on blood lipoids. The relation of cholesterol and protein deficiency to BASAL METABOLISM. Epstein (A. A.) & Lande (H.), Arch. Int. Med. (Chicago), 1922, **30**, 563-577.

The author believes that a definite relationship exists between the blood cholesterol and diseases of the **suprarenal** and **thyroid.** The normal value for cholesterol in the blood ranges between 160 and 200 mg. per 100 cc. The Bloor modification of the Funk-Antenrieth method was used. A low blood cholesterol value was found in cases with increased basal metabolism and a high blood cholesterol content in those with lowered basal metabolism, especially those with edema or **myxedema.** The authors believe that the blood cholesterol is an index of the lipoid content of the suprarenal cortex and body tissue. In nephrosis, basal metabolism determinations were found very valuable in differentiating cases suitable for high protein and thyroid therapy. The remarkable improvement in these cases under thyroid extract is explained by its promoting the utilization of protein, thus ultimately influencing the edema.—H. L.

Study in BASAL METABOLISM in dementia praecox and manic-depressive psychosis. Gibbs (C. E.) & Lemcke (D.), Arch. Int. Med. (Chicago), 1923, **31**, 102-115.

Fifteen cases formed the manic group and eleven cases belonged in the dementia praecox group. Basal metabolic determinations were made, all possible experimental precautions being taken. Definitely abnormal rates were found in psychotic patients in the more acute phases of their psychosis. The variations from normal were greater in dementia praecox patients than in manic-depressive insanity. The patients did not show sufficient evidence to explain satisfactorily the findings in terms of **thyroid** or **pituitary** disorders. Several of the dementia praecox patients did show some evidence of disturbed growth, including incomplete sex maturity. Thyroid extract by mouth raised the rate to normal in two cases, but no immediate mental improvement took place. Inanition was not

thought to account for the readings except possibly to some extent in two cases.—H. L.

Chemical studies on the relation of the CAROTID GLAND to the ADRENAL system (Chemisches über die Zugehörigkeit der Carotisdrüsen zu dem Adrenalsystem). Aszódi (Z.) & Paunz (L.), Biochem. Ztschr. (Berl.), 1923, **136**, 159-162.

Water extracts were made from the carotid glands of freshly killed horses. The possibility that these extracts might contain a substance having the properties of adrenalin was tested by qualitative chemical tests, by the action of the extracts on smooth muscle and by their effect on sugar excretion when injected into white rats. In all cases the tests were negative and the author accordingly concludes that the carotid gland is not a member of the adrenal system.
—F. S. H.

Tumors of the CAROTID gland (I tumori della glandola carotica). Fedeli (F.), Arch. ital. di chir., 1922, **6**, 217; abst., Med. Sc. (Lond), 1923, **8**, 31.

Detailed report on an individual tumor and a review of the literature.—R. G. H.

The action of PANCREATIC extract in DIABETES (A propos de l'action de l'extrait pancréatique dans le diabète). Achard, Acad. de méd. (Par.), 1923, April 3; abst., Presse méd. (Par.), 1923, **31**, 327.

(DIABETES) Uber Urobilin. Adler (A.), Deutsches Arch. f. klin. Med. (Leipz.), 1922, **140**, 302-322.

Urobilin is a normal substance in human urine, about 20 to 25 mg. being excreted daily in health. Administration of sugar in diabetes causes an increased amount of urobilin. In light cases of diabetes it is not excreted in abnormal quantities, but the more severe the case the greater the amount of urobilin excreted. Injection of **adrenin** causes marked augmentation of the high urobilin excretion seen in hemolytic jaundice.—J. K.

A rapid method of preparing the ANTI-DIABETIC substance of pancreas. Allen (R. S.), Kimbell (C. P.) & Murlin (J. R.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 519-521.

Dietetic treatment of DIABETES MELLITUS (Neuere Gesichtspunkte in der Diätbehandlung des Diabetes mellitus). Assmann, München. med. Wchnschr., 1922, **69**, 1323.

See Endocrin., **7**, 461.

INSULIN. Banting (F. G.), Michigan State M. Soc. J. (Grand Rapids), 1923, **22**, 113-124; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1341.

The effect produced on DIABETES by extracts of pancreas. Banting (F. G.), Best (C. H.), Fletcher (A. A.), Macleod (J. J. R.) & Noble (E. C.), Tr. Ass. Am. Physicians (Phila.), 1922, **37**, 337-347.

A report of progress.—I. B.

Clinical experience with insulin (PANCREATIC extracts) in treatment of DIABETES MELLITUS. Banting (F. G.), Campbell (W. R.) & Fletcher (A. A.), J. Trop. M. [etc.] (Lond.), 1923, **26**, 50-54; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 961.

Anatomo-pathologic and pathogenetic study of DIABETIC retinitis (La rétinite diabétique—étude anatomo-pathologique et pathogénique). Beauvieux & Pesme (P.), Arch. d'opht. (Par.), 1923, **40**, No. 2 (Feb.); abst., Presse méd. (Par.), 1923, **31**, Analyse 16 (April 7).

Impending and real gangrene associated with DIABETES. Correlation of medical and surgical effort. Bernheim (B. M.), Am. J. M. Sc. (Phila.), 1922, **163**, 625-634.

Bernheim, of the Surgical Clinic of the Hebrew Hospital, Baltimore, records 3 cases illustrating the importance of correlation between the physician and surgeon in the treatment of impending and actual diabetic gangrene.—Med. Sc., **7**, 363.

Treatment of DIABETES with INSULIN. Blum. (L.), Bull. Acad. de méd. (Par.), 1923, **88**, 73.

Blum prepared insulin according to Banting and Best's method, and reports two favorable clinical experiences. In the debate, Achard mentioned similar organotherapeutic experiments at his school in 1919, and especially some experiments, never published, which his pupil Gardin made with decoctions of pancreas. The transient suppression of glycosuria, valuable as it is, is not a cure for diabetes. Gley mentioned also his experiments. He did not use ligation of ducts, because they regenerate too easily. He injected fats into the ducts, and stained them to see whether the whole pancreas was injected. He deplores the lack of facilities for keeping animals for experimental work, which prevents many researches in France.—J. Am. M. Ass., **80**, 963.

The influence of INSULIN on the curve of glycemia in DIABETES (L'influence de l'insuline sur la courbe de la glycémie dans le diabète). Blum (L.) & Schwab (H.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 463-464.

Treatment of DIABETES by INSULIN (Traitement du diabète par l'insuline). Blum (L.) & Schwab (H.), Soc. de méd. du Bas-Rhin, 1923, Jan. 27; abst., Presse méd. (Par), 1923, **31**, 184.

One subject who had been in diabetic coma for 2 hours was notably improved after 3 doses of insulin; the acid intoxication

disappeared. Another patient, intoxicated to a much greater degree, with an alkaline reserve of 0.23 and a glycemia of 4.94 gm., presented after 3 days of treatment an alkaline reserve of 0.56 and a glycemia of 1.24 gm.—R. G. H.

Lumbar puncture in DIABETES. Bordoni Posse (C.), Rev. méd. d. Uruguay (Montevideo), 1922, **25**, 858-862.

Bordoni Posse adds another case to the few on record in which diabetes seemed to be favorably influenced by lumbar puncture. Lhermitte has reported subsidence of glycosuria and polyuria after lumbar puncture in 2 cases of diabetes. In Bordoni Posse's case there was intense acetonuria and diaceturia, and 6 liters of urine. After lumbar puncture, without change of diet, the glycosuria dropped from 360 to 5 gm. and the polyuria to 1 liter. The acetonuria persisted, but finally subsided after an oatmeal day. The man, aged 35, left the hospital free from glycosuria and polyuria and acetonuria. The diet contained 1,900 calories and 60 gm. of carbohydrates. The sugar content of the blood was 1.15. The author suggests that lumbar puncture relieves pressure on the central nerve centers which control the sugar content of the blood.
—J. Am. M. Ass., **80**, 1107.

DIABETES. Bose (J. P.), Indian J. Med. (Calcutta), 1922, **3**, 263-268; cit., J. Am. M. Ass., (Chicago), 1923, **80**, 1103.

Balancing the ration in severe DIABETES. Brown (A. G.), Virginia M. Month. (Richmond), 1923, **49**, 706-708; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1178.

DIABETES with acidosis and its treatment (Notes sur le diabète avec acidose et son traitement). Brunon Guardia (R.), Normandie méd. (Rouen), 1922, **33**, 3-6 (suppl.).

Experimental DIABETES MELLITUS (Diabète sucré expérimental). Camus (J.), Gournay (J. J.) & Le Grand (A.), Compt. rend. Acad. d. sc. (Par.), 1923, **177**, 146-148.

Experimental lesion of the tuber cinereum in rabbits produces a glycosuria of much longer duration (up to several weeks) than does Claude Bernard's puncture.—A. T. C.

Study of the acetogenic and antiacetogenic equilibrium of metabolism in the spontaneously DIABETIC dog of Maignon (Etude de l'equilibre acétogénique et antiacétogénique dans la métabolisme de la chienne spontanèment diabétique de Maignon). Carrasco-Formiguera (R.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 611-614.

(DIABETES) Criticism of some points in the doctrine of Maignon on acetonuria (Critique de quelques points de la doctrine de Maignon sur l'acétonurie). Carrasco-Formiguera (R.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 614-616.

(DIABETES) The influence of various carbohydrate foods on glycemia (Influence de divers aliments hydrocarbonés sur la glycémie). Casteigts (M.), Compt. rend. Soc. de biol. (Par.), 1922, **86**, 1110-1112.

(DIABETES) Influence of different carbohydrates on glycosuria (Influencia de diversos alimentos hidrocarbonados sobre la glucemia). Casteigts (M.), Rev. Asoc. méd. argent. (Buenos Aires), 1922, **35**, 28-41.

In diabetic and in normal subjects it was observed that with administration of equivalent amounts of carbohydrates from different sources the hyperglycemic curve became greater decreasingly after the ingestion of 75 gm. of glucose, 250 gm. rice, 450 gm. potatoes and 300 gm. oats respectively. Three hours afterwards the glycemia was less than in the beginning.—B. A. H.

Action of the alcoholic extract of PANCREAS (insulin) on critical glycemia [Action de l'extrait alcoolique de pancreas (insulin) sur la glycémie critique]. Chabanier (H.), Lebert (M.) & Lobo-Onell (C.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 480-482.

A method of preparation to be published later.—T. C. B.

The rôle of the renal threshold of glucose in the phenomenon of tolerance in DIABETICS (Du rôle du seuil rénal du glucose dans le phénomène de tolérance chez les diabétiques). Chabanier (H.), Lebert (M.) & Loro-Onell (C.), Arch. d. mal. d. reins, 1922, **1**, 112-122; abst., Ber. u. d. ges. Physiol. (Berl.), 1923, **16**, 234.

Adipsia and pain in the epigastrium as premonitory signs of DIABETIC coma (L'adispie et l'épigastralgie, signes précuseurs du coma diabétique). Chalier (J.), Lyon méd., 1922, **131**, 263-266

The author, who records a case in a man aged 63, who had had diabetes for 8 years, emphasizes the importance of adipsia and pain in the epigastrium as premonitory signs of diabetic coma. Adipsia has not hitherto been mentioned as a prodromal sign of coma, whereas the significance of epigastric pain in this connection has long been known.—Med. Sc., **7**, 358.

Method employed for controlling DIABETICS in outpatient department of Lakeside Hospital. Christie (C. D.), Ohio State M. J. (Columbus), 1923, **19**, 250-253; abst., J. Am. M. Ass. (Chicago), 1923, **80**, 1543.

DIABETES MELLITUS in a child of 22 months. Colburn (O.), Arch. Pediat., 1922, **39**, 48-51; abst., Med. Sc. (Lond.), 1923, **7**, 360.

It is not frequent to find a diabetic patient producing a diabetic child, as in the case reported by Colburn in a child aged 22 months, whose father had had glycosuria for a number of years.—R. G. H.

Carbohydrate metabolism in avitaminosis (Der Kohlehydratstoffwechsel bei Avitaminose. II. Glykogen und Avitaminose). Collazo (J. A.), Biochem. Ztschr. (Berl.), 1923, **136**, 20-25.

The liver is practically glycogen-free in the hyperglycemic state of avian avitaminosis. The same is true for dogs and guinea-pigs. In birds the body as a whole is practically glycogen-free. This holds for muscle tissue. This condition thus differs from that of simple starvation in that there the liver, heart and skeletal muscle tissue contain relatively an increased glycogen content. The three vitamins, A, B, and C play a similar role in the carbohydrate metabolism of birds and carnivora.—F. S. H.

The influence of glucose in small and large amounts on the blood-sugar of normal, fasting and avitaminotic organisms (Ueber den Einfluss von Traubenzuckerzufuhr in kleinen und grossen Mengen auf den Blutzucker beim normalen, hungernden und aviataminösen Körper). Ibid., 26-37.

The avitaminotic organism differs from the normal and fasting animal (dog) in the reaction of its carbohydrate to the peroral, rectal, intraperitoneal, intravenous and subcutaneous administration of glucose. When large amounts of the sugar are given the hyperglycemia is more intense, more prolonged and glucosuria is more easily induced in the avitaminotic organism. When small doses of glucose are given the hypoglycemic stage is less though more prolonged.—F. S. H.

The toxic action of the products of intermediary metabolism after the administration of various sugars in avitaminosis (Ueber die toxische Wirkung intermediärer Stoffwechselprodukte nach der Zufuhrung verschiedener Zuckerarten bei der Avitaminose). Ibid., 278-290.

Extensive experiments reported in a dilute fashion lead the author to the belief that avitaminosis produces a disturbance of carbohydrate metabolism giving rise to intermediary toxic substances.—F. S. H.

(DIABETES) The demonstration of a hormone in plant tissue to be known as "glucokinin." Collip (J. B.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 321-323.

The author has extracted from plants a substance similar to insulin in its physiological action on the sugar metabolism of dogs and rabbits. This substance has been found in yeast, green onion tops, onion roots, barley roots, sprouted grain and several other plants. Collip concludes that it is probably present all through the plant kingdom. He suggests the name "glucokinin" for this substance. In some ways the author believes that it is superior to insulin when used to treat diabetic rabbits. It is less toxic and its effects are longer maintained.—J. C. D.

Case of DIABETES in pregnancy. Cortabarría (F.), Rev. méd. d. Uruguay (Montevideo), 1922, **25**, 611-616 (Aug.); abst., J. Am. M. Ass. (Chicago), 1922, **79**, 1645.

(DIABETES) Action of insulin on glycemia and on acidosis (Action de l'insuline sur la glycémie et sur l'acidose). Desgrez (A.), Bierry (H.) & Rathery (F.), Compt. rend. Acad. d. sc. (Par.), 1923, **176**, 1833-1835.

The usual results were obtained.—A. T. C.

Levulose in treatment of DIABETES. Desgrez et al., Bull. Acad. de méd. (Par.), 1922, **88**, 167-175 (October 31); abst., J. Am. M. Ass. (Chicago), 1922, **79**, 2196.

The variations of the blood sugar of the rabbit throughout the day and the effect of the subcutaneous injection of glucose. Eadie (G. S.), Am. J. Physiol. (Balt.), 1923, **63**, 513-519.—T. C. B.

(DIABETES) The influence of mono- and poly-saccharide on blood sugar (Uber den Einflusz der Mono und Polysaccharide auf den Blutsucker). Eliassow (W.), Ztschr. f. klin. Med. (Berl.), 1922, **95**, 384-393; see also, München med. Wchnschr., 1922, **69**, 1508-1509.

Inulin usually has no influence on blood sugar. In a few cases a very slight increase was seen after 2-3 hours. When every day for 3 days about 25 gm. of inulin was given, the slight rise during the first and second days changed into a decrease on the third day. In 2 patients suffering from diabetes 100 gm. of inulin was given daily for 8 days; other carbohydrates were not given. The feces did not show a higher degree of fermentation after this diet. The author concludes that the action of inulin in the bowels is not yet completely understood, but that we have no reason to doubt that absorption takes place. It is very probable that absorption is very slow, and the author believes that this explains why inulin is supported so much better in diabetes than glucose or levulose.—J. K.

Relation of gallbladder disease to DIABETES. Eustis (A.), N. Orl. M. & S. J., 1923, **75**, 449; abst., J. Am. M. Ass. (Chicago), 1923, **80**, 957.

Syphilis of the PANCREAS (La syphilis du pancréas). Faroy (G.), J. méd. franç. (Par.), 1922, **11**, No. 12 (Dec.); abst., Presse méd. (Par.), 1923, **31**, 187.

(DIABETES) Hyperglycemia—Based upon a study of 2000 blood chemical analyses. Feinblatt (H. M.), J. Lab. & Clin. M. (St. Louis), 1923, **8**, 500-505.

The great majority of sugar determinations in this study were made by Folin's method. Out of 2000 routine blood sugar determinations taken in the wards of the Long Island College Hospital,

81 yielded readings in excess of 150 mg. per 100 cc. Thirty-four of the subjects, or 42 %, presented clinical evidences of diabetes mellitus. The remaining 47 were considered nondiabetic. These latter furnished a heterogeneous group, and in only 14, or 30%, could the diagnosis account for the hyperglycemia. A single report of an abnormally high blood sugar value may be due, among other things, to emotional disturbances. A study of the relation between hyperglycemia and glycosuria emphasizes the fact that the renal blood sugar threshold varies in different persons and in the same person under different circumstances. In diabetes a high threshold value may exist, which tends to increase in proportion to the severity of the disease.—I. B.

On the change in the nature of blood sugar of DIABETICS caused by INSULIN. Forrest (W. D.), Smith (W.) & Winter (L. B.), J. Physiol. (Lond.), 1923, **57**, 224-233.

The blood sugar of diabetics differs from that of normal persons as regards the ratio copper reducing to polarimetric value. In diabetics the decreased amount of blood sugar contains a greater proportion of normal blood sugar.—T. C. B.

White mice and the assay of INSULIN. Fraser (D. F.), J. Lab. & Clin. M. (St. Louis), 1923, **8**, 425-428.

The author finds that white mice starved 24 hours are very susceptible to the intraperitoneal injection of insulin and that mice fed immediately after the injection of insulin are very tolerant to its effects. Following the injection of insulin the starved mice, after a latent period of about 20 minutes, show postural eccentricities, increased rate and excursion of respiration, and finally either ataxia and paresis or convulsions. In a "typical" reaction the animal recovers within 5 minutes after the intraperitoneal injection of 0.25 cc. of 15% dextrose in 0.9% saline.—I. B.

(DIABETES) The presence of a blood sugar reducing substance in yeast. Funk (C.) & Corbitt (H. B.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 422-423.

The authors noted hyperglycemia in pigeons placed on a vitamine-free diet. The blood sugar was reduced by injections of vitamine B prepared from yeast. Since such yeast preparations act more slowly than insulin and over a longer period, as noted by Collip and others, it is suggested that the active substance is not identical with insulin but is a precurser which undergoes a slow change into it.—J. C. D.

DIABETES and tuberculosis. The problem of treatment. Funk (E. H.), Med. Clin. N. Am. (Phila.), 1923, **6**, 893-898.

In practically all cases of diabetes mellitus associated with pulmonary tuberculosis diabetes is the initial disorder and active tuberculosis a subsequent development. The problem of diet is vital.

Experience justifies the attitude of ignoring for the time being the tuberculosis in an attempt to render the urine sugar free by approved dietary methods. The resulting loss of weight need not disconcert the medical attendant, for it would inevitably occur if the diabetes were not controlled. Following dietary restrictions there is an increased ability to utilize carbohydrates and properly metabolize fat and proteins, and thus there may result not only a gain in weight, but an increased resistance to further extension and activity of the tuberculosis.—I. B.

Action of extracts of sclerosed PANCREAS on DIABETIC dogs (by extirpation of the pancreas) [Action des extraits de pancréas sclérosé sur des chiens diabétiques (par extripation du pancréas)]. Gley (E), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1322-1325.

Reprint of a paper on this subject published by himself in February, 1905, and remarks on the work of Banting, Best, Macleod and others.—T. C. B.

The management of DIABETES MELLITUS of children. Graham (H. B.), Med. J. Australia (Sydney), 1922, **ii**, 89-94; abst., Med. Sc. (Lond.), 1923, **7**, 361.

As regard the prognosis, although some investigators maintain that the diagnosis of diabetes in a child is practically equivalent to a sentence of death, Graham is less pessimistic.—R. G. H.

DIABETES and the THYROID (Diabetes tiroidea). Grau San Martin (R.), Crón. méd.-quir de la Habana, 1922, **48**, 493-495.

Treatment of DIABETES with diet and mineral waters (Erfahrungen uber die Diabetestherapie durch Diät und Mineralwasserkur). Graul (G.), Allg. med. Centr.-Ztg. (Berl.), 1922, **91**, 127-129.

See Endocrin., **6**, 678.

Transitory hypermetropia in DIABETES and its etiology (Transitorisk hypermetropi ved diabetes og dens ætiologi). Hagen (S.), Norsk Mag. f. Lægevidensk. (Kristiania), 1921, **82**, 424-428.

Hagen suggests that transitory hypermetropia is more common in diabetes than is generally supposed, and within 6 months he has seen this combination in 3 cases in his private practice. In every case the hypermetropia did not develop till a starvation diet had been prescribed for about a week, and the concentration of sugar in the urine had been greatly reduced. This hypermetropia persisted for a month and a half to two months, being demonstrable long after the glycosuria had ceased. After giving details of these 3 and 2 other hospital cases, Hagen concludes that this form of hypermetropia must be the result of antidiabetic treatment, and not a direct sequel to the disease itself.—Med. Sc., **7**, 359.

The rôle of phosphate and potassium in carbohydrate metabolism following INSULIN administration. Harrop (G. A. Jr.) & Benedict (E. M.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 430-431.

(DIABETES) Hyperglycemia and hypertension. Herrick (W. W.), Tr. Ass. Am. Physicians (Phila.), 1923, May 1-2.

In the average case of diabetes mellitus, the blood pressure is low; but in the elderly obese patient with arterio-sclerosis, the blood pressure is high. From 10 to 25% of these people show a definite hyperglycemia, and constitute the borderline between hypertension and diabetes. They have a high sugar threshold. These are different from the essential hypertension cases. I have been impressed with the fact that these cases of obesity with hyperglycemia have often arisen from an ill balanced diet. These patients have been told that they must have diminished protein, and consequently they ingest more starchy foods. The effect on elderly persons with poor tolerance for glucose is dangerous. A condition of arteriosclerosis arises, with overstrain of the pancreas. These people are usually ambulatory office patients with circulatory embarrassment on account of obesity. If they are put on the diet that maintains the blood sugar at a normal level, loss of weight will result and there will be lowered blood pressure and less cardiovascular strain. An interesting point in blood chemistry is that the concentration of crystalloids in the blood is related to blood pressure. In plotting the curves of glucose and chlorid content of the blood, there is a definite relation between the two. There is a precise inverse concentration of chlorids and of sugar. Protein has heretofore borne all the odium in hypertension cases, but the possibility of overfeeding with carbohydrate in a certain class of cases has not been mentioned.

—J. Am. M. Ass., **80**, 1804.

DIABETES MELLITUS und Urobilinogenurie. Heténi (G.), Berl. klin. Wchnschr., 1921, **58**, 1462-1463.

Heténi, of the Third Medical Clinic of Buda Pesth University, examined 87 uncomplicated cases of diabetes and 14 with various complications, such as degeneration of the myocardium, uncompensated cardiac disease, alcoholism, and hyperemesis gravidarum, without finding a single case of urobilinogenuria. He comes to the conclusion that the liver in diabetes mellitus is in a condition of increased activity, inasmuch as it prevents the increased amount of urobilinogen, which under normal circumstances it could not deal with, from entering the blood-stream.—Med. Sc., **7**, 359.

The mortality from DIABETES. Hoffman (F. L.), Boston M. & S. J., 1922, **187**, 135-137.

Hoffman, consulting statistician to the Prudential Insurance Company of America, has drawn up a table of diabetes death rates for specified countries, in most cases for the five years ending 1919, showing that the range in frequency varies from a maximum of 38.4 per 100,000 of population in the case of the Island of Malta, 18.1 for the Isle of Man, and 16.1 for the Island of Guernsey, to a minimum of 1.5 for the Island of Jamaica, 1.1 for the Bahamas, and 1.0

for Venezuela. The average diabetes death rate for the United States registration area is 16.4 per 100,000 of population, practically the maximum rate attained by the countries or islands which rank highest in the table. The American death rate is decidedly above the average of 11.8 for England and Wales and while it is unquestionably affected by the relatively large Jewish population in the large cities of the United States, this factor cannot be considered as primarily responsible for the marked excess. As regards the mortality from diabetes in cities, the normal diabetic death rate of New York city for the five years ending 1919 was 19.8 per 100,000 population, or higher than the maximum rate reported for the city of Berlin (17.9), Copenhagen (17.1), or Amsterdam (15.9). The minimum rates were reported for Tokio (4.1), Singapore (4.3), Manila (4.5), and for the city of Mexico (5.4).—Med. Sc., **7**, 355.

Glycosuria and DIABETES in exophthalmic goitre. Holst (J.), Acta med. Scand. (Stockholm), 1921, **55**, 302-322.

The author observed at autopsy 4 cases of exophthalmic goitre combined with glycosuria. In all these cases there was found a decrease in the number of the Langerhans' islands and other histological changes of the pancreas. There is reason to believe that in Graves' disease the well-known anomalies in the sugar metabolism are induced by gross anatomical changes of the pancreas in some cases, whereas the slight anomalies are only functional. Seven patients suffering from Graves' disease with alimentary glycosuria were all cured by hemistrumectomy; 3 patients suffering from glycosuria became aglycosuric after the operation; another patient got diabetes, which proved fatal although she had previously undergone an operation for exophthalmic goitre. Thus the treatment shows good results in mild cases of glycosuria and poor results in severe cases. The glycosuria in experimental pancreas diabetes disappears or decreases after thyroidectomy. Normally the thyroid exerts an inhibitory action over the pancreas. These facts seem to favor the hypothesis that in the usual cases of non-thyrogenous diabetes also there is a therapeutic possibility in hemistrumectomy, not of curing the diabetes, but of reducing the hypofunction of the Langerhans' islands.—H. B.

The sugar content of cutaneous and venous blood in DIABETES MELLITUS and other forms of glycosuria (Undersögelser over Sukkerindholdet i Cutanblod og Veneblod ved Diabetes mellitus og andre Glykosurier). Iolst (J. E.), Hosp.-Tid. (Copenhagen), 1922, **65**, 577.

In 1921, Hagedorn compared the sugar content of the capillary blood taken from a vein in the arm, and he found that the differences were not the same for diabetics and normal persons. In normal fasting persons the sugar content of the blood, taken simul-

taneously from these two sources, was practically identical. After the administration of carbohydrates and an increase of the sugar content of the blood, this was less in venous than in capillary blood, the difference in the two concentrations usually being greatest when the concentration of the sugar was highest. In normal persons (64 investigations) the difference ranged from 0.001 to 0.049, with an average difference of 0.026. He could find no regularity in these differences, great variations occurring not only in different persons but in the same person at different times. In diabetics the difference between the sugar content of the capillary and venous blood after the administration of carbohydrates was usually much smaller and was sometimes not demonstrable. The average difference for 26 investigations was 0.010. Hagedorn concluded that the composition of the capillary blood from the ear closely resembles that of arterial blood. Holst has carried his investigations a step further, his material consisting of 14 cases of diabetes mellitus and 23 of other forms of glycosuria. He confirms Hagedorn's finding that in diabetics given carbohydrates there is usually little or no difference between the sugar content of cutaneous blood and that of venous blood. The behavior in this respect of the 23 patients with non-diabetic glycosuria was essentially that of normal persons.—Med. Sc., **7**, 332-333.

The frequency of DIABETES MELLITUS in Basel (Ueber die Häufigkeit des Diabetes mellitus in Basel). Hunziker (H.), Schweiz. med. Wchnschr. (Basel), 1921, **52**, 168-172.

As the result of a questionnaire addressed to all the medical practitioners and hospitals in the canton of Basle, Hunziker, of the Basle Public Health Office, gained the following information: (1) At least 1 per 1,000 of the inhabitants of the canton of Basle were suffering from diabetes mellitus in the period between April 1, 1918, and April 1, 1919; (2) the disease was considerably more frequent in the later decennia than in early life, 152 of the 215 patients being over 50 years of age; (3) in Basle, as elsewhere, diabetes mellitus is more frequent in males than females; (4) the Jewish population of Basle shows a very high diabetes incidence; the proportion of cases among Jews and non-Jews being 15:1 among men, 7:1 among women, and 12:1 in both sexes.—Med. Sc., **7**, 355.

Treatment of DIABETES in children. Johannsen (N.), Acta Pædiat. (Upsala), 1922, **2**, 180.

Johannsen reports favorably on Joslin's method in the treatment of 7 diabetic children.—J. Am. M. Ass., **80**, 592.

Early diagnosis of DIABETES. John (H. J.), Texas State J. M. (Fort Worth), 1923, **13**, 512-516; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1271.

(DIABETES) Renal glycosuria. Jonas (L.), Med. Clin. N. Am. (Phila.), 1923, **6**, 1079-1087.

An interesting paper of value in the differential diagnosis of diabetes mellitus. The importance of discrimination between renal glycosuria which does not influence the health of the individual, and diabetes mellitus is stressed. Blood-sugar tests are the indices in diagnosis.—I. B.

DIABETES MELLITUS complicating surgery. Jones (A. T.), Boston M. & S. J., 1923, **188**, 483-488.

A discussion of the newer methods of treatment of DIABETES. Joslin (E. P.), South. M. J. (Birmingham), 1922, **15**, 93-103.

The treatment of DIABETES. Joslin (E. P.), Boston M. & S. J., 1922, **186**, 761-763; abst., Med. Sc. (Lond.), 1923, **7**, 356.

Joslin states that in one series of his patients a third acknowledged that they had eaten or drunk to excess, and in another series two-thirds admitted excess in food.—R. G. H.

The urinary nitrogen excreted in DIABETES. Joslin (E. P.), Tr. Ass. Am. Physicians (Phila.), 1922, **37**, 333-336.

From the study of a large series of urinary nitrogen determinations in diabetic patients the author concludes: (1) the protein metabolism alone does not control the total metabolism; (2) exogenous protein may be more stimulating to the metabolism than endogenous protein; (3) a very high nitrogen excretion in a severe and extremely thin diabetic may represent the prelethal rise of nitrogen; (4) even a feeble and famished diabetic may still retain the power to oxidize carbohydrate to a degree which is often not appreciated, but should be utilized. It is not how much fat a diabetic can bear, but how much carbohydrate he can burn which should engage our attention. If he can burn carbohydrate in a prelethal state he should certainly burn it when in better nutrition. In diabetes our chief concern is the oxidation of carbohydrate.—I. B.

Levulose and the DIABETIC metabolism. Joslin (E. P.) & Root (H. F.), Tr. Am. Soc. Clin. Investigation, 1923, April 30.

Highly purified levulose in amounts proportional to body weight was given to diabetic patients. Levulose ingestion produced a less marked hyperglycemia than dextrose, and a marked rise in respiratory quotient and metabolism followed. Even in severe diabetes, only a small amount of sugar appeared in the urine after as much as from 75 to 100 gm. of levulose was taken. Pure levulose, 15 gm. in portions of 5 gm., 3 times daily, or insulin, 15 gm., in the form of artichokes when added to the diet of a diabetic patient for periods of from one to four weeks did not produce glycosuria.

—J. Am. M. Ass., **80**, 1727.

Influence of infection on carbohydrate tolerance in DIABETES MELLITUS. Kern (R. A.), Med. Clin. N. Am. (Phila.), 1923, **6**, 1053-1066.

A report of 2 cases. In case 1, that of a man of 65, diabetic gangrene developed following the blistering of the toes by a hot brick. After a course of preliminary dieting, amputation was performed following which, despite the absence of any particular dietary attempt to render the urine sugar free, there was increased carbohydrate tolerance and disappearance of glycosuria and ketonuria. Case 2 is that of a girl of 13 who, while on an inevitable high-fat diet, developed an infection of the throat which terminated fatally in 6 days in diabetic coma. The author points out that the patient required the high-fat diet prior to the occurrence of the complication, but that it rendered her more vulnerable to infection.
—I. B.

A case of infantile DIABETES (Ein Fall von Diabetes im Säuglingsalter). Kochmann (R.), Jahrb. f. Kinderh. (Berl.), 1922, **99**, 20-27; abst., Med. Sc. (Lond.), 1923, **7**, 360.

Kochmann, who reports a fatal case in an infant aged 4½ months, in whom death was preceded by staphylococcal folliculitis, bronchopneumonia, and coma, states that the disease is extraordinarily rare during the first year of life, only 6 cases of the kind, and none of them above criticism, having been collected by Stern. The diagnosis in Kochmann's case was based on the persistent excretion of glucose, and was confirmed by the autopsy, which showed a great deficiency of the islands of Langerhans and the presence of fatty changes in the liver and kidneys. The author maintains that the life of a diabetic child can be prolonged only for a few months even by the best treatment.—R. G. H.

DIABETES MELLITUS and icterus. Koleczek (A.), Monatschr. f. Kinderh. (Leipz.), 1923, **26**, 68-70.

A case described in a boy of six.—J. K.

Insulin in treatment of DIABETES. Krogh (A.), Ugesk. f. Laeger (Copenhagen), 1923, **85**, 21-25.

Krogh relates the history of this new treatment of diabetes, of which he made a special study while in this country. Probably it will be long before insulin can be imported into Denmark. He discussed with the Toronto professors the possibility of Danish collaboration in further research, especially in the use of fish instead of beef pancreas. In collaboration with Drs. Hagedorn and Johansen the work is now well under way at Copenhagen, with both fish and beef pancreas.—J. Am. M. Ass., **80**, 592.

Renal DIABETES during pregnancy in its relation to the functions of the ENDOCRINE GLANDS (Der renale Diabetes während der

Schwangerschaft in seiner Abhängigkeit von den Funktionen der Drüsen mit innerer Sekretion). Küstner (H.), Monatschr. f. Geburtsh. u. Gynäk. (Berl.), 1923, **62,** 119-126.

Pregnant rabbits show renal glucosuria. The increased sensitivity of the kidneys is not caused by the **placenta** or fetal metabolic products, but by an altered function of the **ovary.** Renal diabetes is dependent upon the presence of a **corpus luteum.**—F. S. H.

Acidosis from fasting and from DIABETES. Labbé, Bull. Acad. de méd. (Par.), 1923, **89,** 242-255; abst., J. Am. M. Ass. (Chicago), 1923, **80,** 1882.

Variations in glycemia under the influence of fats in DIABETES (Variations de la glycémie sans l'influence des graisses chez les diabétiques). Labbé (H.) & Théodoresco (B.), Compt. rend. Soc. de biol. (Par.), 1923, **88,** 483-484.

DIABETES in children and its treatment (Le diabète infantile et son traitement). Labbé (M.), Paris méd., 1922, **i,** 371-378; abst., Med. Sc. (Lond.), 1923, **7,** 360.

Labbé remarks that while diabetes in children does not differ fundamentally from that met with in adults it is practically only the severe form which is seen in children, whereas in the adult the bulk of the cases are moderate or mild and show no tendency to progress. Although the disease is not frequent in children, Labbé has seen about 30 cases. Exceptionally it may occur during the first weeks of life, and its frequency increases with age. According to Labbé, congenital syphilis is not of any greater importance in the pathogenesis of infantile diabetes than acquired syphilis in the etiology of adult diabetes. Heredity appears to have more significance, although it is not frequent to find a diabetic patient producing a diabetic child. In 3 of his patients the disease occurred in several members of the same family. Labbé emphasizes the insidious character of the onset of diabetes in children. The child loses flesh and appears to be tired, the digestion is often defective and the general development is inadequate, often amounting to infantilism. Some maintain that the diagnosis of diabetes in a child is practically equivalent to a sentence of death, but Labbé is less pessimistic.—R. G. H.

The action of levulose in DIABETES (L'action du lévulose chez les diabétiques). Labbé (M.), Bull. Acad. de méd. (Par.), 1922, **88,** 189-193; abst., Presse méd. (Par.), 1922, **30,** 978.

Although levulose is better tolerated by diabetics than are certain other sugars, it is not completely utilized and its absorption provokes a hyperglycemia and glycosuria which is not very different from that produced by glucose. Like all other hydrocarbons, levulose exercises an antiketogenic action on the acidosis of fasting; but

there is no influence on diabetic acidosis, the pathogenesis, intensity and seriousness of which are quite different. The equilibrium of the diet is of great importance from the point of view of the acidosis of fasting, but is not of the same significance as in diabetic acidosis, the mechanism of which is very difficult to study.—R. G. H.

DIABETES and syphilis. Labbé (M.), Bull. Acad. de méd. (Par.), 1923, **89**, 53-60; abst., J. Am. M. Ass. (Chicago), 1923, **80**, 878.

DIABETIC hyperglycemia (La glycemie chez les diabétiques). Labbé (M.), Labbé (H.), Nepveu (F.), Presse méd. (Par.), 1923, **31**, 173-174.

The value of the clinical information furnished by glucose tolerance tests is discussed; it is shown that these tests alone reveal the efficiency of sugar metabolism, but it should be recalled that anomalies of sugar metabolism are not found exclusively in diabetes, since such anomalies have been observed in liver insufficiency by Gilbert and Baudoin, and in Graves' disease by American investigators. The writers point out that the relation between glycemia and glycosuria is too variable to give information of any value; they cite their observations on 3 diabetics with equal blood sugar values, who were found to excrete respectively 2.51 gm., 18.9 gm. and 30.16 gm. of sugar in each 1000 cc. of urine; another patient was found to excrete 4.41 gm. at one time and only 2.11 gm. at another time, although his blood sugar remained constant at 1.55-1.56 gm. The relative permeability of the kidney to glucose (renal threshold) only partly explains these variations; Ambard's conception of the extreme variability of the renal threshold seems somewhat exaggerated, because, as in many biologic phenomena, the initial threshold, marked by the appearance of sugar in the urine, is always higher than the final threshold, marked by the disappearance of sugar. Some writers believe that the duration of the diabetes raises the renal threshold, but it seems more probable that the increased impermeability of the kidney is the result of the nephritic complications, which are far more common in mild, slow types of diabetes than in rapid, severe types. Study of the renal threshold has furnished the following classification: (1) ordinary diabetes, which may be mild or severe, with or without derangement of protein metabolism, but in which the threshold remains at 2 gm. per 1000; (2) the diabetes of obesity complicated by nephritis, in which the renal threshold is permanently high, as shown by excessive hyperglycemia with or without very mild glycosuria, and which points to a severe derangement of sugar metabolism; and (3) renal glycosuria, caused by hyperpermeability of the kidney in the absence of disturbances of sugar metabolism. Glycose tolerance tests are of value also by revealing the patient's response to treatment.—G. L.

The rôle of syphilis in the etiology of DIABETES (Le rôle de la syphilis dans l' étiologie du diabète). Labbé (M.) & Touflet (H.), Ann. de méd. (Paris), 1923, **13**, 567-582.

An exhaustive critical study. It is concluded that in the great majority of cases syphilis plays no part in the genesis of diabetes: statistics show that syphilis is no more frequent among diabetics than other diseased persons and that diabetes does not occur with any particular frequency among the syphilitics. Clinical practice shows the inefficacy of specific treatment for diabetes. The similitude of the nervous symptoms in the two diseases is no argument for attributing diabetes to syphilis. Conjugal diabetes is sufficiently explained on the basis of a common hygienic defect. There are, however, certain cases of syphilitic diabetes. They are the sequence of syphilitic lesions of the pancreas, liver and nervous system. These cases are very rare, and are particularly interesting from the fact that specific treatment is curative.—F. S. H.

(DIABETES) Fat carbohydrate ratio. Ladd (W. S.) & Palmer (W. W.), Tr. Ass. Am. Physicians (Phila.), 1921, **36**, 266-268.

DIABETES and syphilis (Diabète et syphilis). Lebar. Vie méd. (Par.), 1921, **2**, 1063-1065.

Dietetic treatment of DIABETES. Linossier (G.), Paris méd., 1922, **12**, 265-271 (September 23); abst., J. Am. M. Ass. (Chicago), 1922, **79**, 2039.

Insulin and DIABETES (Insulin und Diabetes). Lux (A.), Wien. klin. Wchnschr., 1923, **36**, 297-298.

Describes American investigations.—J. K.

The respiratory exchange and blood sugar curves of normal and DIABETIC subjects after epinephrin and insulin. Lyman (R. S.), Nicholls (Elizabeth) & McCann (W. S.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 485-488.

The article gives the details of tests carried out on 5 normal men and 8 diabetics.—J. C. D.

The treatment of DIABETES MELLITUS. Lyon (D. M.) & Meakins (J.), Edinb. M. J., 1921, n. s., **27**, 270-285.

The authors describe the Allen treatment, noting recent modifications and illustrating the method with a case history.—J. C. D.

PANCREATIC extract and DIABETES. Macleod (J. J. R.), Canad. M. Ass. J. (Toronto), 1922, **12**, 423-425.

After mentioning the experimental preparation of extract and the difficulties encountered in passing to large-scale production, the author continues: "Briefly, the most significant of the results which have been obtained are as follows: Subcutaneous injection of the extract into normal rabbits causes a certain level (about 0.045 per

cent), perfectly characteristic symptoms of a convulsive character appear and, if left alone, the animal passes into a comatose condition, which soon ends in death. If a solution of sugar be injected subcutaneously when the symptoms appear, the animal immediately recovers and may remain perfectly normal or pass again into the convulsions, which may be removed a second time by injections of sugar. Many observations have convinced us that these symptoms are definitely related to the lowering of blood-sugar—they may indeed be called hypoglycaemic convulsions—and this is all the more interesting in the light of the work of F. C. Mann, who found similar symptoms to develop in dogs when the blood sugar was lowered to about 0.04 per cent by isolation of the liver from the circulation. The discovery of this effect on normal rabbits has proved a most important one in connection with the isolation and purification of the extract, since it affords a readily available laboratory test object. It obviates the necessity of using depancreated dogs for our work. As is to be expected, an extract which acts only feebly on normal rabbits has a much more pronounced effect on the hyperglycaemia of diabetic dogs. Not only is the blood sugar lowered in rabbits that are normal but also in those rendered diabetic by any of the experimental methods usually employed to bring this about. These are puncture of the floor of the fourth ventricle (piqûre), asphyxia, poisoning by carbon monoxide gas, ether, or **adrenalin.** None of these causes hyperglycaemia in rabbits after injecting them with sufficient amounts of pancreatic extract. There may occasionally be a slight increase in the percentage of blood sugar but never to anything like the extent usually observed without extract. The animals used for these experiments were always well fed with carbohydrates and the glycogen content of the liver determined. The importance of this result is that it shows us that even the purely experimental forms of diabetes have much in common with the clinical forms."

The results of glycogen and fat analyses are discussed as follows: "The importance of these observations rests on the fact that they show that the function which is primarily regulated or controlled by the internal secretion of the pancreas is that concerned with the deposition of glycogen. They would seem to suggest that glycogen must be an essential preliminary stage in the utilization of sugar by the animal body and that when the pancreatic hormone is absent excess of sugar leads to the mobilization of large quantities of fat."

After mentioning the observations of elevation of the respiratory quotient the author concludes: "In the light of these various types of evidence we feel justified in expressing the belief that it will be possible by administration of pancreatic extract, to treat diabetes in man much more satisfactorily than has hitherto been the case. Dietetic control must no doubt remain an important feature of treat-

ment, and will probably be all that is necessary in the earlier stages of the disease, but in the later stages it is hoped that administration of extract will prove of value. What other therapeutic uses the pancreatic extract may have remains as yet undetermined."—J. Metab. Research, **2**, 137-138.

(DIABETES) Response to two notes of R. Carrasco-Formiguera entitled "Critique de quelques points de la doctrine de Maignon sur l'acétonurie." "Etude de l'equilibre acétogénique et anti-acétogénique dans le metabolisme de la chienne spontanémente diabétique de Maignon." Maignon (F.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 877-880.—T. C. B.

(DIABETES) Studies on sugar tolerance. Major (R. H.), Johns Hopkins Hosp. Bull. (Balt.), 1923, **34**, 21-26.

The results of glucose tolerance tests on 60 patients are reported. The diabetic type of sugar curve with glycosuria is constant in diabetes mellitus. The level of the sugar threshold varied greatly, showing a tendency to be higher in older individuals. All the cases of acute nephritis studied showed a diabetic type of blood sugar curve usually without glycosuria. No constant type of curve was obtained in thyroid or pituitary diseases. Abnormal curves are frequent and indicate a disturbance of carbohydrate metabolism. Increased tolerance to carbohydrates was found in **pituitary** disease, often with a high sugar threshold. Some of the glycosurias encountered in **hyperthyroidism** are due to a lowered renal threshold. These observations indicate that as a rule the urine does not show sugar in appreciable amounts until a definite blood sugar level is reached. This level or "renal threshold" varies somewhat in health, but markedly in disease. Repeated tests on the same individuals show marked variations in this "renal threshold." Four individuals classed as "renal diabetics" showed glycosuria with a blood sugar at normal or subnormal levels.—Author's Summary.

CHRONIC PANCREATITIS. Marsh (P. L.), Med. Clin. N. Am. (Phila.), 1923, **6**, 1223-1225.

An interesting contribution of special value to the surgeon, dealing with the casual relationship between diabetes mellitus on the one hand and gall bladder disease and chronic pancreatitis on the other. Three illustrative case histories are included.—I. B.

The relation between ingested fat and the lipemia of DIABETES MELLITUS. Marsh (P. L.) & Waller (H. G.), Arch. Int. Med. (Chicago), 1923, **31**, 63-75.

Twelve patients of varying age, with different types of diabetes mellitus as regards severity, previous treatment, degree of acidosis and duration of symptoms, form the basis for this study. All were for some time on the Newburgh and Marsh high fat, low protein,

low carbohydrate diet. The total lipoids of the blood were determined by the method of Bloor. Charts of each case are included, which graphically demonstrate that in the patients in whom hyperlipoidemia existed at first observation, the total blood fat had later diminished to normal levels despite the fact that the food fat was progressively increased. This is strong evidence that the prevalent assumption that diabetic hyperlipoidemia is dependent on the excessive ingestion of fat is unwarranted. The explanation of this phenomenon must be sought in some other unusual feature of the diabetic state.—H. L.

Treatment of mild DIABETES MELLITUS. Marsh (P. S.), J. Mich. M. Soc. (Grand Rapids), 1923, **22**, 56-61; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 957.

Non-specific Wassermann reactions in DIABETES MELLITUS. Mason (E. H.), Am. J. M. Sc. (Phila.), 1921, **162**, 322-328.

Mason states that in a series of 168 cases of diabetes mellitus treated at the Metabolism Clinic of the Royal Victoria Hospital, Montreal, 2 gave strongly positive Wassermann reactions in the blood, though there was no history or evidence of syphilis. In both cases the reaction became negative after slight antispecific treatment (2 intravenous injections of neophenarsenyl), but there was a marked and rapid decline of the carbohydrate tolerance. Mason suggests that the arsenic acted as a toxic agent upon the weakened pancreatic cells, altering the quality or quantity of the internal secretion.—Med. Sc., **7**, 360.

(DIABETES MELLITUS) Respiratory exchange following the ingestion of glucose, glycerol, calcium hexose phosphate and calcium glycerophosphate. McCann (W. S.) & Hannon (R. R.), Johns Hopkins Hosp. Bull. (Balt.), 1923, **34**, 73-80.

In a study of the effects of glucose ingestion on the respiratory exchange of diabetic subjects two types of response were encountered. In the first type of subject, ingestion of glucose resulted in a diminished rate of carbohydrate oxidation, as shown by a decrease in the respiratory quotients for an abnormal length of time. These subjects all improved greatly under treatment with the development of a good carbohydrate tolerance, showing on subsequent tests an improved ability to oxidize glucose. A second type of patient with severe diabetes was encountered in whom the ingestion of glucose produced a rise of respiratory quotients at a rate similar to that of normal subjects. These individuals were not responsive to treatment with a maintenance diet, low in protein, and balanced as regards ketogenic and antiketogenic factors. A rise in heat production may or may not follow the ingestion of glucose by diabetic subjects. It occurred in both subjects of the second type. In the first type the heat production may increase with falling respiratory quotients and

vice versa. The changes in respiratory quotients of diabetic subjects who ingested glycerol were parallel to those produced by the ingestion of glucose in the same subjects. In normal subjects there was no parallelism between the effects of glycerol and glucose. The specific dynamic action of glycerol was negligible in all but one experiment. In this one case an increase in total metabolism of 20% was observed coincidentally with a decrease in R. Q. A comparison of the effects of ingestion of calcium hexose phosphate with those produced by glucose showed that in subjects of the first type hexose from the phosphoric ester was oxidized more readily than glucose. Hexose phosphate ingestion caused a steady rise in respiratory quotients in both diabetic subjects and in a normal individual. It was followed by a rise in heat production of from 4.5-12% in all experiments. The effect of the ingestion of calcium glycerophosphate upon the respiratory exchange is variable. In three diabetic subjects of the first type the respiratory quotients rose more readily than when glycerol was taken alone. It is impossible to interpret these results in terms of the oxidation of glycerol.—Quoted from original.

The use of a high fat diet in DIABETES MELLITUS, with report of a case. McCollom (W. E.), Long Island M. J. (Brooklyn), 1922, **16**, 99-103.

A review of the current methods.—J. C. D.

The influence of the nutritional condition of the animal on the hypoglycemia produced by INSULIN. McCormick (N. A.), Macleod (J. J. R.), Noble (E. C.) & O'Brien (K.), J. Physiol. (Lond.), 1923, **57**, 234-252.

Toxic symptoms are more frequent or occur earlier in rabbits having a scanty store of glycogen than in those having an abundance of glycogen. With small doses of insulin the blood sugar may be scarcely affected in glycogen rich animals, but show a pronounced fall in non-glycogenic animals. For a period varying from 30 to 90 minutes after injection of insulin the sugar falls at a uniform rate and bears no relation to dose or nutritional condition of the animal. After this it rises more rapidly in glycogen rich animals. An approximate assay can best be arrived at by measuring the blood sugar 90 minutes and 3 hours after injection in animals that have fasted 24 hours.—T. C. B.

The present status of insulin therapy in DIABETES. McLean (F. C.), China M. J. (Shanghai), 1923, **37**, 205-214.

An excellent review. An announcement of the forthcoming preparation of insulin by the Peking Union Medical College is made.

—L. G. K.

Syphilitic DIABETES MELLITUS. Meineri (P. A.), Policlin. (Roma), 1923, **30**, 307.

Meineri relates an unusual case of diabetes mellitus of syphilitic origin in a man, aged 46, the fifth year after infection with syphilis. He had taken courses of calomel during these years, but then symptoms of diabetes developed, with symptoms of neurosyphilis. Under intensive arsenical-mercurial-iodid treatment the whole subsided. Treatment as for diabetes had no effect, but under the specific treatment the glucose in urine dropped from 88 to 44 gm. and finally disappeared entirely during the last week of the course. He cites Villaret's recent case in which symptoms of diabetes appeared a few days after the primary chancre. The glycosuria of 422 gm. and the acetonuria rapidly subsided under mercurial treatment. In his case he ascribes the diabetes to syphilitic lesions in the central nervous system. The cerebral symptoms disappeared first, then the glycosuria, but the Wassermann reaction was still strongly positive 2 months later.—J. Am. M. Ass., **80**, 1816.

Glucose tolerance test in DIABETES. Menninger (C. F.), Kansas M. Soc. J. (Topeka), 1923, **23**, 85-90; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1732.

Type of diet as an etiologic factor in DIABETES MELLITUS. Meyer (J. E.), Nebraska State M. J. (Norfolk), 1923, **8**, 89-93; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1342.

Decreased intraocular tension in DIABETIC coma. Middleton (W. S.), Wisconsin M. J. (Milwaukee), 1923, **21**, 458-459; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1414.

Psychologic tests applied to DIABETIC patients. Miles (W. R.) & Root (H. F.), Arch. Int. Med. (Chicago), 1922, **30**, 767-777.

Diabetic patients frequently complain of poorer memory and diminished power of attention, but objective proof of this has been lacking. By certain psychologic tests applied in such cases as well as to suitable controls, it was found that diabetic patients with hyperglycemia and glycosuria at the beginning of treatment show a decrement of about 15% or more in memory and attention tasks. The loss is in amount rather than in quality. With treatment the diabetic improves rapidly in his psychologic status, approaching but not quite reaching normal. In accuracy and quickness of movements five treated diabetics, each case of long duration, were 20% below normal.—H. L.

Clinical indications of the etiology of DIABETES. Mitchell (J. W.), Med. Rec. (N. Y.), 1921, **100**, 575-580; abst., Med. Sc. (Lond.), 1923, **7**, 356.

The predilection of diabetes for the male sex is shown by the fact that of Mitchell's 116 cases, 70 were males and 46 females.

A definite history of diabetes in several members of the family was obtained in 46.6% of the cases. Sixty-five, or 56% of the patients were Jews. Approximately 60% were obese or gave a history of obesity. Fifty-one, or 43.9% gave a history of recent infection, such as influenza, gall-bladder infection, or gastro-intestinal disease; syphilis figured in only 3 of his cases.—R. G. H.

Treatment of DIABETES by the active extract of the Isles of Langerhans (Quelques considérations à propos des récents travaux canadiens sur le traitement du diabète pur l'extrait actif des îlots de Langerhans). Monad (G.), Bull. gén. de thérap. (Par.), 1923, **174**, 100-101.

Symptomatology and treatment of infantile DIABETES (Séméiologie et traitement du diabète infantile). Mouriquand (G.), Lyon méd., 1922, **131**, 3-13.

The author remarks that polyuria is almost constant and is often the first symptom to attract attention. Polydipsia is another early sign which is rarely absent. Polyphagia, on the other hand, is less constant than polyuria or polydipsia, and is a late phenomenon. Pain in the epigastrium, in Mouriquand's experience, is commoner in the child than in the adult. On the other hand, boils, abscesses, and trophic lesions are less frequent in the child and usually appear only towards the end of the disease. The nervous system is also less frequently affected in the child, intense and obstinate headache being often the only symptom of this kind. As regards the prognosis, Mouriquand maintains that the diagnosis of diabetes in a child is practically equivalent to a sentence of death.—Med. Sc., **7**, 360.

Treatment of DIABETES (Behandling av diabetes). Motzfeldt (K.), Norsk Mag. f. Lægevidensk. (Kristiania), 1921, **82**, 249-284.

Motzfeldt, of the Rikshospital, Christiania, has carried out the modern starvation treatment of diabetes, as advocated by American writers, during the past 3½ years, and has compared the results achieved in this period with those of the earlier period 1912-1917, when such systematic dieting was not prescribed. In the first period there were 54 patients whose average age was 44. In the second period there were 77 patients whose average age was 36, and whose disease in many cases was severe. In the first series only 44% were discharged without glycosuria and ketonuria, in the second series 79%. In the first series 24%, in the second series only 9%, were discharged with glycosuria and ketonuria. In the first series 13%, and in the second series only 5%, died in coma. Motzfeldt supplements these statistical data in favor of modern starvation treatment and total dietary restrictions with illustrative cases of diabetes which a few years ago would have been regarded as inevitably and rapidly fatal. A valuable and simple clinical test in cases of acidosis threatened with coma is to note the time the patient can hold his breath

Although Motzfeldt's paper is largely confirmatory of Allen's system, he does not push dieting to such an extreme as Allen seems to find advisable.—Med. Sc., **7**, 361.

Aqueous extracts of the PANCREAS. I. Influence on the carbohydrate metabolism of DEPANCREATIZED animals. Murlin (J. R.), Clough (H. D.), Gibbs (C. B. F.) & Stokes (A. M.), J. Biol. Chem. (Balt.), 1923, **56**, 253-296.

Acid aqueous extract of cat's pancreas raised the respiratory quotient in 2 different cats from the diabetic level to 0.82 and 0.87. Extracts of pig and ox pancreas were about equally effective for reducing the blood sugar and the D:N ratio of depancreatized dogs when given intravenously, subcutaneously or intraperitoneally. Extracts made in acidulated water were just as effective as those made in acidulated alcohol. Extremely toxic effects are obtained if the trypsin is not destroyed or if the acid is not completely neutralized before administration. Filtering through charcoal and Lloyd's reagent removes a large part of the active principle. There are 2 substances in the aqueous extracts, one of which lowers the blood sugar and the D:N ratio and raises the respiratory quotient; the other raises the blood sugar of both normal and depancreatized animals and possibly causes an abrupt fall in the respiratory quotient to the diabetic level after 3 to 5 hours. The method of stomach administration has given almost uniformly positive results.—F. S. H.

Influence of acid perfusates upon the blood sugar, D:N ratio and respiratory metabolism of DEPANCREATIZED dogs. Murlin (J. R.), Clough (H. D.), Gibbs (C. B. F.) & Stone (N.), Am. J. Physiol. (Balt.), 1923, **64**, 348-363.

Insulin is extracted by perfusion of the pancreas with acidulated Ringer more readily than with alkaline. There is sufficient concentration of insulin to cause a fall of blood sugar.—T. C. B.

On the mechanism of phlorizin DIABETES. Nash (T. P.) & Benedict (S. R.), J. Biol. Chem. (Balt.), 1923, **55**, 757-767.

Using dogs as experimental animals it was found that dextrose ingested in sufficient amount to induce protracted hyperglycemia in phlorizinized animals is recovered quantitatively in the urine. It is suggested that phlorizin not only affects the permeability of the kidney tissue of blood sugar, but produces an intrinsic impairment of the sugar-burning mechanism. When a mixture of dextrose and urea is ingested by a phlorizinized dog the sugar is excreted in the urine more rapidly than the urea. This discredits the interpretation of a more rapid production of sugar than urea in animo-acid metabolism.—F. S. H.

Metrorrhagias in DIABETES (Metrorragias en la diabetes). Navarro (A.), An. Fac. de med. (Montevideo), 1923, **8**, 171-174.

Report of 3 cases.—R. G. H.

Dietary treatment of DIABETES. Nesbit (W. E.), Texas State J. M. (Fort Worth), 1923, **13**, 516-518; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1271.

Recent advances in dietetic treatment of DIABETES MELLITUS. Neuhoff (F.), J. Missouri M. Ass. (St. Louis), 1923, **20**, 57-59; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1101.

Cases illustrating the use of a high fat diet in the treatment of DIABETES MELLITUS. Newburgh (L. H.), Med. Clin. N. Am. (Phila.), 1923, **6**, 1119-1127.

While the method of fasting and undernutrition has its advantages in the treatment of especially the severer forms of diabetes, theoretic considerations suggest that moderate restriction of calories during the period of desugarization will accomplish as much as complete fasting, and that a maintenance diet will be just as capable of keeping the patient sugar free and of preventing or delaying downward progress as will undernutrition. Moreover, a dietetic regime that will control this disease while avoiding the evil of incapacity is desirable. A diet of this sort must be much higher in fat and poorer in protein than that administered in the past. Four case histories of the 200 consecutive patients treated by the high fat, low protein, low carbohydrate diet are given as evidence that this diet not only does not cause acidosis, but is attended by its disappearance in those patients who were suffering from acidosis at the start.—I. B.

Further observations of the use of a high fat diet in the treatment of DIABETES MELLITUS. Newburgh (L. H.) & Marsh (T. L.), Tr. Ass. Am. Physicians (Phila.), 1922, **37**, 117-165.

Though overfeeding and large gains in weight are detrimental to the diabetic, severe undernutrition is likewise harmful. A suitable diet may be constructed by deriving the major portion of the calories from fat. Ample evidence is offered to prove that the fear of fat in the dietary of the diabetic is groundless. Recent findings confirm the authors' previous conclusions that a high fat dietary succeeds in controlling glycosuria, avoiding acidosis, maintaining nitrogen balance, and avoiding or overcoming hyperlipoidemia and permits normal activity on the part of the patient. Some patients who could not be made sugar free by starvation may be made so by a high fat diet yielding about 950 calories. The prognosis of diabetes is also discussed in detail, as well as many practical points relative to cooperation of the patient in treatment.—I. B.

DIABETES in children. Nobécourt, Bidot & Paraf, Arch. latino-am. de pediat. (Buenos Aires), 1922, **16**, 705-710 (November).

The authors call attention to diabetes with arrest of growth, in children. A typical case is described in which the girl, aged 15, appeared to be but 12. The diabetes developed at the age of 13. The

child was fairly well nourished, but it was impossible to free the urine from sugar. Loss of weight and general depression followed too strict dietetic measures.—J. Am. M. Ass., **80**, 514.

Treatment of DIABETES by the general practitioner (Hausärztliche Behandlung des Diabetes). v. Noorden (C.), Deutsche med. Wchnschr. (Berl.), 1923, **49**, 69.

von Noorden believes that hereditary diabetes is caused by hereditary pancreatic weakness. Children of diabetic families ought to live on a diet low in carbohydrates and rather low in protein as infections may reach the pancreas, causing temporary glycosuria and sometimes, many years later, producing real diabetes. The overfeeding so often practiced after infectious diseases is not recommended. The author denies the existence of neurogenic diabetes; he considers renal diabetes as a light case of real diabetes. The different methods of treatment are discussed. In coma the author advises lavage of the stomach, alcohol, but no food, even no carbohydrates, and, when necessary, strophanthin.—J. K.

The internal secretion of the PANCREAS (Experimentelles Studium der inneren Sekretion des Pankreas. II. Uber den Kohlenhydratstoffwechsel bei den Hunden mit der Eckschen Fistel). Oka (T.), Tohoku J. Exper. Med. (Sendai), 1922, **3**, 206-225; abst., Ber. ü. d. ges. Physiol. (Berl.), 1923, **16**, 471.

The PANCREATIC hormone and DIABETES (Hormone pancreatique et diabète). Pagniez (P.), Presse méd. (Par.), 1923, **31**, 50-51.

A historical survey of the progress made in the study of diabetes, beginning with the experiments of Mering and Minkowski, 1889, and ending with the discovery of insulin by Banting and Best with reference to the studies of Collip and Macleod. The work of Hédon, 1891, who produced chronic diabetes in dogs by partial pancreatectomy, and of Lépine, who suggested that lack of a pancreatic hormone was the cause of diabetes, is discussed. Mention is also made of the recent experiments of Mackenzie Wallis, who used an alcoholic extract of hogs' pancreas with some success in diabetes and showed that it produced glycolysis in vitro, and of the work of Thomson, who used a boiled pancreatic extract which caused hypoglycemia in rabbits and severe headaches in his experiments on himself. The writer raises the question as to how far the effect of pancreatic extracts are to be considered specific, since he obtained similar results with peptons and salvarsan; he noted, however, that the clinical results produced in certain types of diabetes cannot be questioned.

—G. L.

DIABETES MELLITUS with slight acidosis. A discussion of the buffers of the blood. Pepper (O. H. P.), Med. Clin. N. Am. (Phila.), 1923, **6**, 926-931.

A discussion of the known principles involved in the biochemistry of diabetes mellitus, with an illustrative case.—I. B.

Dietetic treatment of DIABETES (Dietetische behandeling der suikerziehte). Peters (J. T.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1922, **66 (II)**, 2569-2584.

No new data. A combination of different methods is recommended.—J. K.

The beginnings of arthritic DIABETES (Les débuts d'un diabète arthritique). Perrin (M.), Rev. méd. de l'est (Nancy), 1921, **49**. 634-635.

Brief note concerning the record of urinary analyses in a case of diabetes from 1899 to 1917. The interesting point in connection with the observation is the market effect of emotional excitation in increasing the glucosuria.—F. S. H.

The "N-minimum" in DIABETES MELLITUS. Petrén (K.), Acta med. Scand. (Stockholm), 1922, Suppl. III, 101-112.

The author examined the excretion of urea in 30 cases of diabetes. He concluded that it is possible to obtain a lower N-minimum in diabetes than under normal conditions. It is not necessary to give the patients an excessive quantity of calories; even when the food is greatly reduced, urea excretion is low. Nor is a great quantity of carbohydrates needed. Thus it is easier to induce a minimum nitrogen metabolism in the diabetic organism than in the normal one. The author noted decreased nitrogen metabolism in hunger even when the urea excretion was previously very low, whereas a small amount of albumen added to the food had the power of increasing the metabolism.—H. B.

Syphilitic origin of DIABETES (L'origine syphilitique des diabètes). Pinard (M.), Médicine (Par.), 1922, **4**, 123-124.

Pinard believes that the incidence of syphilis as a cause of diabetes is sufficiently high that it should always be treated or ruled out before dietary treatment is instituted.—R. G. H.

Relations between the PANCREAS and neurosis, heart neurosis, Graves' disease and nervous diarrheas (Uber die Beziehungen des Pankreas zu Neurosen, Herzneurosen, Basedowoid, nervösen Diarrhoën). Pineles (F.), Wien. Arch. f. inn. Med., 1923, **6**, 167-174.

The case is described of a man of 51 who, since 30 years of age, had shown several symptoms of heart neurosis. The urine was without albumin or sugar. There was no goiter. About 7 years ago temporary glycosuria was noted. Six years ago the ingestion of

100 gm. glucose produced glycosuria; 3 years ago this reaction was negative. Since 1 year ago the patient has had diabetes. A man of 56 was observed. When he was 24 he had his first attack of stenocardia. The heart seemed normal. The thyroid was normal. Since 1901 he has had repeated heart attacks and diabetes has been manifest. In a man of 47, who for many years had had symptoms closely resembling stenocardia, there was areophagia and copious defacation with fat feces. He has had diabetes for a year and a half. A man of 55 was observed who has had diabetes for 3 years. Ten years ago he had all the symptoms of heart neurosis. During his attacks the feces often contained large quantities of fat. There was no goiter. A positive reaction to Loewy's eye test was obtained once. After observations of these patients the author noted carefully the function of the pancreas in subjects with heart neurosis and found that 3 of his patients showed all of the symptoms of disturbed pancreatic function. In one case there was glycosuria; the 2 other patients showed a disturbance of the internal secretion of the pancreas. This raises the question of whether there is a relation between the pancreas and the heart, as there is between the thyroid and the heart. From some cases reported this seems very probable. Also observation of many patients with forme fruste of Graves' disease and with nervous diarrheas may lead us to believe that there is a pathogenetic relation between these symptoms and the pancreas.—J. K.

(DIABETES) Glycemia and hunger (La glucemia y el hambre local). Pi Suñer (A.), Med. ibera (Madrid), 1921, **15**, 103-107.

DIABETES and pregnancy (Diabete pancreatico e gravidanza). Pitimada (F. A.), Folia med. (Napoli), 1923, **9**, 129-139.

Pancreas extirpation in the dog exactly reproduces human pancreatic diabetes. This operation does not produce diabetes, however, if done in the last periods of pregnancy on account of the substituting endocrine function of the pancreas of the fetus. In agreement with this are the reports of rare clinical cases in which during the last months of pregnancy the glucose elimination ceases or increases, the origin not being in the pancreas alone.—P. N.

The fate of ILETIN in the body. Poucher (G. W.), Cori (K. F.) & Bowen (B. D.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 521.

A brief note. Fasting and fed animals react differently to iletin; iletin is destroyed or eliminated very slowly in the body. Animals do not develop a tolerance for it. No experiments are reported.—J. C. D.

Two cases of retinitis proliferans of syphilitic and DIABETIC origin. Raia (V. L.), Am. J. Ophth. (Chicago), 1922, **5**, 946-948; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 59.

(DIABETES) The significance and treatment of glycosuria. Rainy (H.), Tr. Med.-Chir. Soc. Edinb., 1921-22, **101**, 46-48; Edinb. M. J., **n. s. 28.**

Clinical phases of DIABETES MELLITUS. Raynor (W. J.), Nebraska State M. J. (Norfolk), 1923, **8**, 93-95; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1342.

Cholesterinemia in DIABETES. Remond & Rouzaud, Bull. Acad. de méd. (Par.), 1923, **89**, 60-61; abst., J. Am. M. Ass. (Chicago), 1923, **80**, 878.

Case of DIABETES MELLITUS. Riely (L.), J. Oklahoma M. Ass. (Muskogee), 1922, **15**, 26.

A case record of a woman of 52. The diabetes was controlled by diet.—W. J. A.

Increase of hyperopia in DIABETES. Roberts (W. H.), Am. J. Ophth. (Chicago), 1923, **6**, 291-295; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1541.

DIABETES MELLITUS. Rolleston (J. D.) & C. L., Med. Sc. (Lond.), 1923, **7**, 355-365.

An excellent review of some of the more important recent literature.—R. G. H.

Rare paralyses in DIABETES MELLITUS. Root (H. F.), Med. Clin. N. Am. (Phila.), 1922, **5**, 1433-1440.

Root, of the New England Deaconess Hospital, reports 3 cases of rare paralysis in diabetes. Two were examples of multiple neuritis complicated by chronic nephritis, and the third of isolated paralysis of the peroneal nerve not associated with the more frequent absence of reflexes and loss of sensation.—Med. Sc., **7**, 358.

The PANCREATIC hormone as an activator of certain muscle enzymes (L'hormone pancréatique comme activateur de certaines enzymes des muscles). Rosling (E.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 112-114.—T. C. B.

Insulin treatment of DIABETES MELLITUS. Rowe (A. H.), Calif. State J. M. (San Fran.), 1923, **21**, 204-208.

A brief survey of the history of insulin, with reports of the results obtained with this substance in the treatment of 24 cases of diabetes mellitus during a period of 4 months. The author concludes that insulin is one of the few specifics we have in medicine, completely fulfilling the dream of physiologists and diabetes specialists.—I. B.

Important principles for the treatment of DIABETES (Los puntos de vista importantes de la terapéutica en la diabetes). Salomon (H.), Rev. Asoc. méd. argent. (Buenos Aires), 1921, **35**, 245-255 (Sec.

de med. int.); see also, Semana méd. (Buenos Aires), 1921, **28**, 249-251.

DIABETES MELLITUS. Diagnosis and treatment. Schlomovitz (B. H.), Jermain (L. F.) & Schuster (B. L.), Wisconsin M. J. (Milwaukee), 1923, **21**, 355-362; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 726.

The concentration of sugar in the blood of the rabbit during inanition and after the ingestion of glucose. Scott (E. L.) & Ford (T. H.), Am. J. Physiol. (Balt.), 1923, **63**, 520-534.—T. C. B.

Etiology and objective symptoms of the liver in 497 cases of DIABETES (Etiologie et signes objectifs du foie de 497 cas de diabète sucré). Sérégé (H.), Gaz. hebd. d. sc. méd. de Bordeaux, 1922, **43**, 182-187; abst., Med. Sc. (Lond.), 1923, **7**, 356.

The predilection of diabetes for the male sex is shown by the fact that of Sérégé's 488 patients, 398 were males and 90 females A history of diabetic heredity was present in 23% of his series. Overeating was a probable cause in 33% of the cases, and alcoholism was incriminated in 9.2%. A history of recent infectious diseases was found in only 14, or 2.8% of Sérégé's cases, the diseases being appendicitis, influenza, and malaria.—R. G. H.

Metabolism in DIABETES from the standpoint of antiketogenesis. Shaffer (P. A.), J. Missouri M. Ass. (St. Louis), 1922, **19**, 134.

Use of PANCREATIC extract in DIABETES. Sherrington (C. S.), Nature (Lond.), 1922, **110**, 774; cit., Chem. Abst. (Easton, Pa.), 1923, **17**, 824.

Glycemia in DIABETES (Studi sulla glicemia). Silvestri (S.), Policlin. (Roma), 1922, **29**, Sez. Med., 362-390.

Silvestri points out that the study of glycemia in diabetes is of great importance, not only for diagnosis, but also for prognosis and treatment. Persistence of a high glycemic concentration with a tendency to a gradual rise of the renal threshold while the patient is on a rational diabetic diet is a grave prognostic, and often indicates the occurrence of complications.—Med. Sc., **7**, 361.

Relation between syphilis and DIABETES MELLITUS. Smith (J. H.), Virginia M. Month. (Richmond), 1923, **49**, 662-665.

In a series of 79 cases of diabetes Smith found clear evidence of syphilis in only 2 cases, both with heart lesions, probably also syphilitic.—J. Am. Ass., **80**, 1102.

The effect of iletin (INSULIN) on the blood sugar content in ADRENALECTOMIZED animals. Steward (G. N.) & Rogoff (J. M.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 339-341.

In rabbits with both adrenals removed, iletin acts on the blood sugar just as it does in normal rabbits. In the cat, injections of

iletin do not influence the output of adrenin from the adrenals. The hyperglycemia following pancreatectomy in a dog was not influenced, either by removal of one adrenal and denervation of the other, or by complete extirpation. Iletin acted in the same way in this case whether adrenin was being secreted or not.—J. C. D.

The influence of iletin (INSULIN) on morphine hyperglycemia. Stewart (G. N.) & Rogoff (J. M.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 341-342.

Morphine hyperglycemia differs from other forms in that the adrenals play a part. Iletin acts on the blood sugar in morphine hyperglycemia in the cat and rabbit, as it does in other cases of increased blood sugar. Suppression of adrenal secretion in a cat did not modify the action of insulin. Insulin modified the usual reaction of cats to morphine. Hyperthermia was absent, the temperature falling steadily as in rabbits and dogs.—J. C. D.

Minor ocular symptoms of DIABETES: presbyopia, hypermetropia, myopia (Les petits signes oculaires du diabète: presbyties, hypermétropie, myopie). Terrien (F.), Paris méd., 1921, **ii**, 312-315.

According to Terrien, the ocular complications of diabetes are frequent and various, being met with in more than 10% of the cases in the form of lesions of the cornea, iris, and choroid, cataract, retinal hemorrhages, changes in the optic nerve, amblyopia, affections of the vitreous, ocular palsies, and palpebral and orbital abscesses. In addition to these serious complications are certain ocular symptoms which though of much less gravity are of diagnostic value owing to their frequency and sudden development. Terrien classifies them under the heading of disturbances of refraction and accommodation. Changes in accommodation consist in presbyopia, which occurs at an unusually early age. Of 80 diabetic patients 11, or nearly 14%, presented a diminution of the power of accommodation or, in more marked cases, actual paralysis of accommodation. The changes in refraction consist in hypermetropia, which may develop suddenly without any previous ocular disturbance or, on the other hand, in a transient myopia.—Med. Sc., **7**, 359.

(DIABETES) Calcium in the blood. Thro (W. C.) & Elm (Marie), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 313-315.

There are two points of direct endocrine interest in this paper. The low carbohydrate diet on which diabetics are placed does not influence the blood calcium in any definite way. In two patients with boils, one of which had low blood calcium, **parathyroid** therapy was successful.—J. C. D.

Two cases of DIABETES of papular necrotic type (Due casi di diabetide a tipo papulo-necrotico). Tommasi (L.), Gior. ital. d. mal. ven. (Milano), 1921, **62**, 477-488.

Relation between DIABETES and syphilis (Rapports entre le diabète et la syphilis). Touflet (H.), Thèse de Par., 1922; abst., Presse méd. (Par.), 1922, **30**, 1072.

Some authors accord to syphilis a very important rôle in the pathogenesis of diabetes, others, only an exceptional rôle. There are 2 ways of explaining the pathogenesis of syphilis in diabetes: (1) syphilis can cause visceral lesions **(hepatic, pancreatic, hypophyseal, thyroid)**, capable of producing diabetes; and (2) syphilis can cause functional troubles which bring about diabetes. Touflet, in agreement with Labbé, states that syphilitic lesions of the pancreas, liver, etc., found at autopsy in diabetics are very rare. On the other hand, specific treatment has only a slight action on glycogen regulation. Conjugal diabetes, which has been mentioned as an example of syphilitic diabetes, seems to be more dependent upon hyperalimentation than is the case in these subjects. Touflet concludes that it is possible that syphilitic diabetes exists, but that its existence has not been demonstrated. He believes that if there is such a condition it is exceptional.—R. G. H.

Alimentary hyperglycemia and glycosuria with special studies of DIABETES innocens (Uber alimentäre Hyperglycemie und Glykosurie mit besonderer Berücksichtigung der innocenten Glykosurie). Traugott (C.), Klin. Wchnschr. (Berl.), 1922, **1**, 2384; see also, ibid., 2262.

If 20 gm. of glucose followed one hour later by 100 gm. does not cause a rise of blood sugar, it is very probable that the subject does not suffer from real diabetes. Even when this second dose causes a rise it is not certain that the patient has real diabetes.—J. K.

Relation between DIABETES and syphilis. A case of diabetes appearing several days after syphilitic chancre (Contribution à l'étude des rapports du diabète et de la syphilis. Un cas de diabète sucré apparu quelques pours après un chancre syphilitique). Villaret (M.) & Blum (P.), Bull. et mém. Soc. mèd. d. hôp. de Par., 1922, **46**, 3 s., 90-94.

The authors, who record an illustrative case in a man aged 45, remark that the relations between diabetes and syphilis have been discussed for the past 50 years, two different opinions being held upon the subject. One school maintains that syphilis is a factor in diabetes by producing nervous lesions, while the other holds that syphilis is merely a debilitating agent without producing any localized lesion. Most of the cases of syphilitic diabetes on record have occurred in the tertiary stage. It is easy to understand how diabetes can be produced by a sclerotic, gummatous, or sclerogummatous process affecting the liver, **pancreas, hypophysis,** or medulla, or by a meningeal process involving the nerve centres, medulla, or hypophysis. Cases of diabetes are much rarer in the secondary stage, though

examples have been reported by Dub, of Prague, and Sewantie, of Paris. In the present case the diabetes appeared before the chancre had cicatrized, and the symptoms of diabetes developed side by side with those of the syphilitic infection.—Med. Sc., **7**, 356.

Tetanus complicating DIABETIC gangrene. Walters (W.), Surg. Gynec. & Obst. (Chicago), 1922, **34**, 122 (Jan.).

DIABETES in young persons (Diabetes bei Jugendlichen). Weiland, Deutsche med. Wchnschr. (Berl.), 1923, **49**, 460.

(DIABETES) Discussion on dental sepsis as an etiological factor in disease of other organs. Wilcox (W.), Proc. Roy. Soc. Med. (Lond.), 1923, **16**, 16 (Sec. Odontology).

Streptococcal and other toxins may lead to toxic glycosuria by impairment of the endocrine function of the pancreas. Accordingly, dental sepsis must always be removed in cases of **diabetes**, and a rise in carbohydrate tolerance and a disappearance of glycosuria are often observed to follow this procedure.—I. B.

DIABETES MELLITUS. Wilcox (W. H.), Practitioner (Lond.), 1921, **107**, 305-321.

A review of the subject from the English physicians' point of view.—J. C. D.

A clinical lecture on DIABETES. Wilder (R. M.), Ann. Clin. Med. (Balt.), 1922, **1**, 80-89.

Until recently the author has followed the methods of Joslin and of Allen in the treatment of diabetes. For the last 2 years, however, he has been studying the reactions of diabetics to a high fat diet. Although not ready to draw any positive conclusions he has observed in a number of cases an apparent advantage in the high fat, low protein, moderately low calorie diet recommended by Allen. The urine of patients has become sugar free more quickly, the edema often accompanying starvation has been avoided, better nutrition has been possible and patients have been more comfortable. Charts and formulae for calculating diet are presented and explained.—E. C. A.

Metabolism of DIABETES. Wilder (R. M.), Boothby (W. M.) & Beeler (C.), J. Biol. Chem. (Balt.), 1922, **51**, 311-355.

Complete metabolic study of a case of diabetes which terminated fatally. Basal R. Q. averaged 0.693, the highest being 0.74 and the lowest 0.65. Experiments on the immediate effect of food on the metabolic rate and R. Q. showed an unexplained depression of the R. Q., the depression being most marked after large amounts of protein. Basal metabolism was materially affected by the previous diet, being 30% below standard. Raising the food intake to meet the energy requirements raised the basal level; this applies

to under-nourished patients only. Acidosis does not itself raise the basal rate. High basal rate in poorly nourished patients is dangerous. Sugar tolerance is depressed by high caloric diet, more markedly by protein than isocaloric amounts of fat. Glucose tolerance varied adversely as the basal metabolism rate.—Physiol. Abst., **7**, 251.

(DIABETES) On the nature of the sugar in blood. Winter (L. B.) & Smith (W.), J. Physiol. (Lond.), 1922, **57**, 100-112.

The sugar in the blood of man, and of ox, sheep, cat and rabbit is an unstable form, probably τ glucose. In diabetes it appears to be the α, β form. An enzyme is postulated whereby the α, β form is converted into the τ form. The absence or inactivation of this enzyme is said to be the cause of diabetes.—T. C. B.

The objects and method of diet adjustment in DIABETES. Woodyatt (R. T.), Tr. Ass. Am. Physicians (Phila.), 1921, **36**, 269-292.

See Endocrin., **6**, 864.

Surgery and DIABETES. Young (E. L.), Boston M. & S. J., 1923, **188**, 767-769.

Not of endocrine interest.—J. C. D.

Salt-poor and salt-free days in DIABETES MELLITUS (Salzarme Diät und salzfreie Tage bei Zuckerkranken). Ziegelroth, Deutsche med. Wchnschr. (Berl.), 1921, **47**, 1358.

(ENDOCRINE) Comparable experiments on the action of heated and non-heated bran and yeast and on the organs of pigeons fed with organs of normal pigeons and polished rice (Weitere Beiträge zur Kenntnis von organischen Nahrungsstoffen mit spezifischer Wirkung. XVI. Vergleichende Untersuchungen über die Wirkung von erwärmter und nichterwärmter Kleie und Hefe und ferner von Organen von normal ernährten und von mit geschliffenem Reis ernährten Tauben). Abderhalden (E.), Arch. f. d. ges. Physiol. (Berl.), 1922, **195**, 432-459. XVII. Abderhalden (E.) & Wertheimer (E.), ibid., 460-479. XVIII.

In the first paper Abderhalden suggests a division of incretions into two classes, those passing into blood, or lymph circulation, and those manufactured and used in the cells themselves. In the second it is shown that injection of large doses of dl-adrenin leads to a temperature fall lasting some hours, with slower recovery. With doses of 2 mg. the fall is continuous till death some hours later. Gas-exchange, measured by carbon dioxide output, is parallel to the temperature change. Pigeons showing signs of alimentary dystrophy from vitamin deficient food are more susceptible to adrenin action. Adrenin solutions on standing at first show a slight increase in activity; later, a diminution Animal charcoal completely absorbs adrenin; this can be largely recovered by washing with distilled water. It is not absorbed by kaolin, kieselguhr, nor casein. Talc

reacts, so that after treatment the adrenin gives a deep blue-violet color with ferric chloride, and no longer gives a temperature effect with pigeons.—A. T. C.

The influence of INTERNAL SECRETIONS on the excretion of gastric juice (Zur Frage der Beziehung der inneren zur Sausseren Sekretion. I. Zur Frage ueber den Einfluss der Drüsen innerer Sekretion auf der Absonderung des Magensaftes). Alpern (D.), Biochem. Ztschr. (Berl.), 1923, **136**, 551-563.

The gastric secretion following the injection of **adrenin** and **pituitrin** in dogs was observed. The administration of an amount of adrenin sufficient to produce a typical alteration of the blood pressure had practically no effect upon the first phase of gastric secretion. The slight preliminary retardation was interpreted as a constrictor effect. Pituitrin in doses from 0.025 to 0.075 per kilo caused a marked inhibition of gastric secretion which lasted for 2 or 3 days. Sham feeding was the testing stimulus for the effectiveness of the drugs.—F. S. H.

(ENDOCRINE) The "gastrin" content of the human pyloric mucous membrane. Ammon (S. E.) & Lim (R. K. S.), Brit. J. Exper. Path. (Lond.), 1923, **4**, 27; abst., Med. Sc. (Lond.), 1923, **8**, 231.

(ENDOCRINE) The principles of rickets (Das Wesen der Rachitis). Aschenheim (E.), Deutsche med. Wchnschr. (Berl.), 1923, **49**, 85-86.

After an enumeration of the theories of the patho-genesis of rickets the author discusses his idea that rickets is a pluriglandular disease, the pluriglandular disturbance arising from acidosis, avitaminosis, etc.—J. K.

(ENDOCRINE) Hypercholesterinemia (Uber Hypercholesterinaemie). Barat (I.), Wien. klin. Wchnschr., 1923, **36**, 221-223.

There are 2 forms of hypercholesterinemia: the mechanical form and the endocrine form which is caused by increased **ovarian** activity (pregnancy) or by endocrine disturbances causing **diabetes.** In diabetes it does not seem to be the diet which causes hypercholesterinemia, but the changed fat metabolism which is always present in severe cases.—J. K.

Chromosomal and INCRETORY hormones (Chromosomale und inkretorische Hormone). Bauer (J.), Med. Klin. (Berl.), 1923, **19**, 427-429.

Theoretical consideration of endocrine factors in heredity.
—J. K.

The dermatological symptoms of ENDOCRINE dysfunction. Bechet (P. E.), Arch. Dermat. & Syph. (Chicago), 1921, N. S. **4**, 660-670.

A general review.—J. C. D.

(ENDOCRINE) Changes in organ weights of the guinea pig during experimental scurvy. Bessesen (D. H.), Am. J. Physiol. (Balt.), 1923, **63**, 245-256.

Twenty-six guinea pigs were divided into 5 groups and fed a scorbutic diet for periods ranging from 5 to 54 days. Animals fed 5, 10 and 15 days appeared normal at autopsy. Those fed for 19 days developed a mild scurvy. Animals fed for 21 to 54 days died of severe scurvy. The sixth group were allowed to develop scurvy and were then cured by a diet of orange juice and green food. In most cases during the first 15 days the changes in weight of the various organs is probably of no significance. After symptoms of scurvy are apparent, changes in organ weight as well as body weight are evident. In comparison with the normal corresponding (final) body weight the **ovaries** alone appear definitely subnormal. The **pancreas** (late stage), heart, liver, **testes** (late stage) and integment indicate a weight roughly proportional to the loss of body weight. The brain, eyeballs, **thyroid, spleen** and intestines are somewhat above normal, indicating some loss in absolute weight, but less than that of the entire body. The spinal cord, lungs (late stage), kidneys, epididymides, **hypophysis** (late stage), and urinary bladder are markedly above normal, indicating little or no loss in absolute weight in spite of the great loss in body weight. The **suprarenals** are increased absolutely as well as relatively. The results show a general agreement with those produced by starvation and tend to confirm the view that changes during scurvy are the result of inanition, although the factors may be different.—T. C. B.

(ENDOCRINE) The nervous and hormone control of the digestive process (Die nervöse und hormonale Beeinflussung der Verdauungstätigkeit). Biedl (A.), Wien. med. Wchnschr., 1922, **72**, 885-889; 935-939; abst., Ber. ü. d. ges. Physiol. (Berl.), 1922, **15**, 247.

Hunger and thirst sensations are not aroused by the nerves but by blood stimulation on the cerebral cortex, therefore by humoral method. Hormones appear to play an important rôle. **Hypophyseal** extract has a thirst quenching effect not only in **diabetes insipidus**, but also in the edema of renal disease. A minimum amount of a certain hormone administered intravenously produces a typical objective picture of hunger—secretory stimulation of digestive juices, increase in muscle tonus and contractions of the digestive tract. Stomach, **pancreas** and gall secretions are under nervous and hormone control. **Pituitrin** sometimes produces vomiting. **Ovarian** extract inhibits vomiting partially or entirely, depending upon the causative factor; this is in accordance with the observation made by Hofbauer regarding vomiting in pregnancy. The tonus of the stomach and intestine is kept up by the autochthonous tonic condition, by the equilibrium of antagonistic innervations and by hormone

influence. Pressure on the cervical vagus produces in some subjects significant effects on the stomach, which can be noted by the roentgen screen; these effects appear in the form of increased tonus, strengthened peristalsis and heaping up of the pylorus opening. **Thyroid** extract and hypophyseal extract stimulate intestinal peristalsis, while **adrenalin** has the opposite effect. In a nerve trunk impulses may be flowing which produce antagonistic effects, from which a fourfold nervous control results. According to recent experimentation no sharp distinction can be made between innervation and hormone activities.—R. G. H.

(ENDOCRINE) Recent views of some ductless glands. Blackford (C. M.), Virginia M. Month. (Richmond), 1922, **49**, 425-430 (November); cit., J. Am. M. Ass. (Chicago), 1922, **79**, 2036.

(ENDOCRINE) Thickening of the skin, especially the dorsal skin of the small joints, caused by pluriglandular insufficiency (Hautverdickungen, besonders an der Dorsalseite der Kleinen Gelenke infolge pluriglandulärer Insuffizienz). Blome, München. med. Wchnschr., 1922, **69**, 1136.

The patient had a small **thyroid** and small **testes**; the prostate had atrophied. He had all the symptoms of **hypophyseal gigantism**. The Abherhalden's reaction was positive with the hypophysis, thyroid and testes. The skin was thick. Histological examination showed infiltration with small lymphocytes and broad lymph spaces. The skin changes were temporarily improved by injections of "horminum masculinum."—J. K.

The ENDOCRINE factors in some common functional diseases. Blumgarten (A. S.), Med. Clin. N. Am. (Phila.), 1921-22, **5**, 1023-1066.

See Endocrin. **6**, 811-832.

ENDOCRINES. Box (W. C.), J. Florida M. Ass. (St. Augustine), 1923, **9**, 164; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1807.

The reaction of the ENDOCRINE system of the rabbit to tumor inoculation and the relation of this reaction to malignancy. Brown (W. H.) & Pearce (Louise), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 472-476.

The **thyroid, parathyroid, suprarenals, hypophysis, thymus,** and **pineal** were observed. All these organs except the last showed changes in size and gross appearance, though alterations in the parathyroids and hypophysis were slight. The thyroid, thymus, and hypophysis showed histological changes. The alterations in weight and histology varied with the stage and severity of the tumor invasion. The ability of the thymus to increase in weight seemed directly related to the ability of the animal to check the tumor. The

seasonal increases in malignancy of the tumor coincided with the periods of endocrine readjustment.—J. C. D.

Animal resistance and the ENDOCRINE system of the rabbit in experimental syphilis. Brown (W.) & Pearce (Louise), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 476-480.

The authors noted changes in the weight of the endocrine organs, notably the **adrenals, hypophysis, thyroids, parathyroids,** and **thymus,** together with histological changes particularly noticeable in the last three. Apparently mercury and iodine work through these organs and the actual response of the animal to the disease is determined by the condition of the endocrine system.—J. C. D.

Effects of operative interference with the ENDOCRINES on the growth and malignancy of a transplanted tumor of the rabbit. Brown (W. H.), Pearce (Louise) & Van Allen (C. M.), Tr. Ass. Am. Physicians (Phila.), 1923, May 1-2.

A tumor arising on the site of an old syphilitic lesion on the scrotum of a rabbit was transplanted and followed through 20 generations, and the pathologic reactions following inoculation were studied. This was of interest because of possible relationship of tumors following syphilitic lesions of the mouth. The experimental animals were matched in regard to size and age. Observations on growth, malignancy and metastases of the tumors were made and tested at necropsy. Different groups of experiments were done to note the effect of removal of **thyroid, suprarnals, spleen** and **thymus,** respectively, on the tumor, and a fourth group without endocrine interference was used as a control. Operations were designed to interfere with the function of the organ, but to leave the animal in good condition. Operative procedures were carried out both before and after inoculation of the rabbits. We found that in the thyroidectomized animals the tumor grows steadily and rapidly. With the thymus removed, the tumor grows slowly, as in old animals. With partial thyroidectomy, the tumor at first grows rapidly but is brought under control. With complete thyroidectomy, very widespread metastases occurred in all cases; that is, this operation increased malignancy. A seasonal incidence was noted; namely, that malignancy was low in summer and high in spring. In summer, partial thyroidectomy gave a stronger result. The conclusions were that any operation disturbing the animal economy will disturb the resistance of the animal. This work seems to be in line with that of Dr. Murphy on the lymph structures, and is probably part of the same body mechanism.—J. Am. M. Ass., **80**, 1954.

The influence of thallium upon the ENDOCRINE system (Experimentelle Beobachtungen über Beeinflussung des endokrinen Sys-

tems durch Thallium). Buschke (A.) & Peiser (B.), Med. Klin. (Berl.), 1922, **18**, 731-732.

See Endocrin., **6**, 686.

(ENDOCRINE) Four cases of muscular dystrophy. Byard (D. S.), Internat. Clin. (Phila.), 1923, **1**, S. 33, 174-177.

A report of 4 cases of muscular dystrophy in children aged 5, 6, 9 and 13 years, respectively, all males. The author concludes by stating that there is little known regarding the etiology of the disease, and that "a presumption of endocrine disturbance seems plausible."—I. B.

(ENDOCRINE) Monosymptomatic glandular dystrophia (Distrofie ghiandolari e particolarménte distrofie monosintomatiche). Campanacci (D.), Riv. crit. di clin. med. (Firenze), 1922, **23**, 69, 79, 92.

(ENDOCRINE) Opotherapeutic value of milk (Le lait naturel aliment opothérapique). Cassoute, Acad. de méd. (Par.), 1922, (December 12); abst., Presse méd. (Par.), 1922, **30**, 1088.

The author believes that its hormone content is an important factor in rendering milk a uniquely valuable food.—R. G. H.

(ENDOCRINE) Gigantism and dwarfism among animals (Gigantisme et nanisme dans la série animale). Chapellier, Soc. de pathol. comparée, 1923, March 15; abst., Presse méd. (Par.), 1923, **31**, 295.

The author shows that giants and dwarfs, in the medical sense of the word, are extremely rare, if existent, among animals. There are human beings very much below or above the average height, but who are normally constituted. Small wild animals are often found, their size almost always being due to malnutrition or to insufficient nourishment when they were young (rabbits from the islands of Manche). There is also sexual dwarfism, the males being ordinarily smaller than the females; sometimes, however, the male is larger (diurnal Raptores, Otaria).—R. G. H.

(ENDOCRINE) The syndromes of pluriglandular insufficiency in the adult (Les syndromes d'insuffisance pluriglandulaire de l'adulte). Claude (H.) & Sourdel (M.), J. méd. franç. (Par.), 1921, **10**, 462-466.

A generalized diffuse review not amenable to abstracting.

—F. S. H.

ENDOCRINE basis of otorhinolaryngological affections (Afecciones otorrinolaringológicas y glándulas endocrinicas). Correa (J. de la C.) & Becco (R.), Semana méd. (Buenos Aires), 1923, **30**, 112-117.

A general review. A description is given of several cases ameliorated by opotherapy.—B. A. H.

(ENDOCRINE) The influence of feeding iodinized tissues of invertebrates on larvæ of Bufo vulgaris (Sull'influenza della nutrizione con tessuti iodati d'invertebrati sulle larve di Bufo vulgaris). Cotronei (G.), Atti d. r. accad. naz. Lincei, Rendiconti, 1921, **30**, 149-151; abst., Ber. ü. d. ges. physiol. (Berl.), 1922, **15**, 106.

Giacomini in 1918 reported that iodinized spleen causes just as rapid metamorphosis of the frog as **thyroid** gland preparation. The author performed similar experiments with muscle of invertebrate animals (Squilla mantis and Donax venustus). He placed the musculature of these animals into a solution of 2 gr. potassium iodide, 1 gr. iodine and 100 gr. water for 24 hours. The muscles thus prepared were washed and fed to the larvæ of Bufo vulgaris. The metamorphosis was hastened in the same manner as if iodinized muscle of vertebrates or thyroid gland had been given; the muscle of crayfish seemed to have a slower effect than that of the mussel. Cotronei, however, feels that he is not justified in drawing further conclusions from these facts without more experimentation.

—R. G. H.

Hyperchlorhydria—a manifestation of ENDOCRINE abnormality. Drummond (J.), South African M. J. (Capetown), 1923, **31**, 34-37; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1032.

(ENDOCRINE) Organotherapy of malignant disease. Engel (D.), Ztschr. f. Krebsforsch. (Berl.), 1923, **19**, 339-381; abst., J. Am. M. Ass. (Chicago), 1923, **80**, 1349.

Partly from a study of the literature and partly from animal experiments with optones Engel concludes that the **pituitary** seems to promote tumor growth, while the **thyroid**, and above all the **thymus**, check it. The elements responsible for this action seem to be the protein products in far advanced retrograde metabolism. **Testes** and **ovaries** were found inert. Ovariectomy in inoperable cancer of the mamma is justified by the stimulation of the thymus that results.—R. G. H.

Epilepsy of ENDOCRINE origin (Epilepsie d'origine endocrinienne: essai d'une pathogénie à point de départ cortical). Etienne (G.) & Richard (G.), Rev. méd. de l'est (Nancy), 1922, **50**, 308-314; abst., Presse méd. (Par.), 1922, **30**, 935.

The authors report a case of late epilepsy which seemed to appear in the course of an endocrine syndrome, notably characterized by **hypothyroidism** and **testicular** atrophy. Reports of association between epilepsy and certain genital conditions in women are very frequent. For example, epilepsy is alleviated or disappears during pregnancy. The authors observed a young girl who became epileptic regularly on the first day of each menstrual period, never at other times. In a late epileptic patient, with a pluriglandular syndrome, **thyro-ovarian** opotherapy deferred the attack, which reappeared at

the time of menstruation when treatment was stopped. In this patient, after prolonged compression of the forearm in the oscillometer, the radial pulse was no longer perceptible in the finger. The subject presented sympathicotonic reactions and was not affected by pilocarpin. Epilepsy is of vascular origin. The authors believe that in certain endocrine conditions there exists a hypertonicity of sympathetic origin of the small arteries of muscular type, such as the cerebral arteries, and that when there is an exacerbation of sympathetic disturbance there is an exacerbation of spasm, the blood suddenly leaves the brain, the conscious sensitivo-motor centers of the cortex are more or less totally inhibited and the lower thalamic centers freed. The epileptic attack follows. Another evidence of this mechanism is seen in the epileptic attacks of Stokes-Adams' disease. Munier has studied the rôle of equilibrium of the vago-sympathetic system in disorders of this kind.—R. G. H.

Mental disease of ENDOCRINE origin (Las endocrinopsicopatias). Fernández-Victorio (A.), Siglo méd. (Madrid), 1923, **71**, 201-203.

The author relates that a youth of good family and a brilliant student suddenly lost interest in his studies and family and developed a paranoid schizophrenic state. A tendency to adiposogenital dystrophia was pronounced and the young man was abnormally tall. This suggested that the **pituitary** was responsible for the endocrino-psychopathy, but pituitary treatment alone and **thyroid** treatment alone failed to benefit. Under mixed organotherapy, marked improvement was realized.—J. Am. M. Ass., **80**, 1654.

Relation of INCRETIONS to the origin of skeletal variations (Beziehungen der inneren Sekretion zur Genese einiger im Röntgenbilde praktisch wichtiger Skelettvarietäten). Fischer (H.), Fortschr. a. d. Geb. d. Röntgenstrahlen (Hamb.), 1922, **29**, 51-56; abst., Ber. ü. d. ges. Physiol. (Berl.), 1922, **14**, 384.

In some cases of early **eunuchoidism** puberty appears rather late and is short lasting. In subjects of this type is found a disproportionate skeleton which is characteristic of early eunuchoidism, but which never occurs in cases of late eunuchoidism or of late castration. The author makes a distinction between eunuchoidism and hypogenitalism; in the latter anomaly there is a rather protracted immaturity in the epiphyseal structure, but no disproportion of the skeleton. The increased height in eunuchoidism is the result of stimulation of the anterior lobe of the **hypophysis**—recognized by the increase in number of eosinophilic cells. This appears as a result of castration. The author accepts as a probable theory that the compact islands sometimes found in the ossifying parts in the region of the epiphyses can be traced to a disturbed functioning of the **sexual glands**. The possibility is also discussed that the espe-

cially overdeveloped carpals and tarsals in arthritis might be the result of a disturbed function of the hypophysis.—R. G. H.

Pathology of the ENDOCRINE glands of the uterus. Tumors of the incretory glands of the uterus (La pathologie de la glande à sécrétion interne de l'utérus. Les tumeurs de la glande à sécrétion interne de l'utérus). Fornero (A.), Arch. ital. de biol. (Pisa), 1922, **71**, 22-39; abst., Ber. ü. d. ges. Physiol. (Berl.), 1923, **18**, 372.

The action of various extracts of ENDOCRINE organs and of various alkaloids on the dilatation of the pupil in the rabbit and frog (Azione di alcuni estratti di ghiandole endocrine e di alcuni alcaloidi sull'ampiezza della pupilla del coniglio è della rana). Fracassi (G.), Arch. di ottal., 1921, **28**, 154-178, 179-203; abst., Ber. ü. d. ges. Physiol. (Berl.), 1923, **16**, 511.

Ocular manifestations of INTERNAL SECRETION. Fuchs (E.), Proc. Inst. Med. (Chicago), 1923, **4**, 73-84.

A somewhat speculative general article not amenable to abstracting.—R. G. H.

ENDOCRINE glands. Fulton (F. T.), Rhode Island M. J. (Providence), 1922, **5**, 347-352; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 62.

Senescence and ENDOCRINOLOGY. [Sénescence et endocrinologie. (A propos de la communication de M. Marinesco sur l'opération de Steinach)]. Gley (E.), Bull. Acad. de méd. (Par.), 1922, **87**, 285-291 (March 14).

A critique, pointing out the fact that the ideas of, and operations directed toward, rejuvenescence are by no means new.

—R. G. H.

Changes of blood sugar caused by drugs (Uber die Pharmacologische Beeinflussung des Blutzuckers). Grossman (M.) & Sandoz (J.), Wien. Arch. f. inn. Med., 1923, **5**, 419-428.

The authors found that while atropin diminished the blood sugar in some subjects it had no influence in others. It had no effect in 2 patients with Graves' disease, both of whom were very sensitive to **adrenalin** and showed the classical type of the sympathicotonic form of **exophthalmic goiter.** No reaction was seen in 2 patients with **diabetes**; 1 of them showed only a slight reaction after the injection of adrenalin; in the other, although adrenalin had a slight influence on blood sugar and blood pressure, there was much less of a reaction than might be expected. In other cases of diabetes atropin markedly decreased blood sugar. All of these patients had extremely severe juvenile types of diabetes with very high blood sugar and marked acidosis. The atropin reaction was also seen in a

diabetic with sclerosis of the kidneys in whom adrenalin caused no change in blood sugar but had a very strong influence on the blood vessels. When adrenalin decreases the blood sugar, the reaction is only temporary and is followed the next day by a slight rise. It would therefore be inadvisable to recommend atropin in treatment of diabetes. It is difficult to explain this reaction caused by adrenin and many experiments and pharmacological observations will be necessary before the influence of atropin on metabolism is understood.—J. K.

(ENDOCRINE) L'organoterapia röntgenologica. Guarini (C.), Rassegna internaz. di clin. e terap. (Napoli), 1922, **3**, 491-495.

A brief review without bibliography.—R. G. H.

Various phases of ENDOCRINE conditions. Haley (Y. W.), J. Tenn. M. Ass. (Nashville), 1923, **15**, 409-412; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 726.

(ENDOCRINE) A case of pluriglandular insufficiency. Harvey (A D.), Indian M. Gaz. (Calcutta), 1922, **57**, 100.

(ENDOCRINE) The amount of calcium in human blood serum (Klinische Untersuchungen über den Kalkspiegel des menschlichen Blutserums). Herzfeld (E.) & Lubowski (H.), Deutsche med. Wchnschr. (Berl.), 1923, **49**, 603-605, 638-639.

The amount of calcium in the serum is very constant and variations in abnormal persons are not so rare as many believe. The authors found hypocalcemia (less than 11 mg. % Ca) in aortic aneurysm of syphilis (1 case), ulcer of the stomach (2 cases), tuberculosis of the lungs, etc., and in **Graves' disease** (1 case). Hypercalcemia (over 11 mg. % Ca) was found in different diseases, among others, 1 case of rachitis tarda combined with hyperthyroidism and 1 case of heart disease due to goiter.—J. K.

The ENDOCRINE system in infancy and early childhood. Hill (O. W.), South. M. J. (Birmingham), 1921, **14**, 689-696.

A review without new facts.—J. C. D.

(ENDOCRINE) Pluriglandular syndromes, their pathogenesis and their pathological anatomical basis (Uber eigentümliche Verlaufformen polyglandulärer Syndrome, ihre Aetiologie und ihre pathologisch-anatomischen Grundlagen). Hirsch (S.), Deutsches Arch. f. klin. Med. (Leipz.), 1922, **140**, 323-341.

The case is reported of a waiter of 55 who, 11 years before, began to lose his hair. He first lost the power of erection and then his sexual desires. He suffered with obstipation. His skin was cold and without perspiration. His **thyroid** could be felt. The **testicles** were about the size of a bean. The skiagram showed a **sella turcica** with vague borderlines. Injection of **adrenalin** did not

produce perspiration. He died of broncho-pneumonia. A post-mortem examination was made. The **hypophysis** was small, with growth of connective tissue and atrophy of glandular parenchyma in both lobes. The **pineal** contained more than the normal amount of calcium. The thyroid weighed 10 gm. but seemed normal otherwise. The **parathyroid** glands were normal. The adrenals were degenerated and very small. The testicles were without Sertoli's cells. The sperm canals did not possess any epithelia. All the tissue was changed into a fibrous mass, probably due to syphilis. The case is also reported of a young looking man of 68 who, since his youth, had had extremely scanty hair growth on the trunk, face and pubes.
—J. K.

Some recent work on INTERNAL Secretions (Algunos trabajos recientes sobre secreciones internas). Hoskins (R. G.), Semana méd. (Buenos Aires), 1923, **30**, 406-412.

Spanish translation of an article in Endocrin., **6**, 621-632.
—B. A. H.

(ENDOCRINE) Scleroderma treated by pluriglandular opotherapy (Sclérodermie traitée par l'opothérapie polyglandulaire). Hugel, Réunion dermatol. de Strasb., 1923, Jan. 14; abst., Presse méd. (Par.), 1923, **31**, 139.

The author reports a case of scleroderma in bands which had previously been treated unsuccessfully by fibrolysin. Pluriglandular opotherapy, however, caused the lesions to disappear almost entirely; only one band, 4-5 cm., remained on the right thigh. Hugel recommends that pluriglandular opotherapy be tried in all cases of scleroderma.—R. G. H.

ENDOCRINE adiposity (Demonstration von Fällen endokriner Fettsucht und Magerheit). Kämmerer & Thannhauser, Deutsche med. Wchnschr. (Berl.), 1923, **49**, 70.

The following cases are described: (1) a boy of 16 with dystrophia adiposogenitalis, homonymous hemianopsia and enuresis; (2) a boy of 17 with **hypophyseal** syphilis; (3) a girl of 12 with **precocious puberty**; (4) two women of 32 and 36 respectively with retarded eunuchoidism; in both of whom after childbirth, adiposity, **diabetes insipidus** and symptoms of brain stimulation developed; (5) a boy of 10 with cerebral adiposity; and (6) a man of 27 with hypophyseal cachexia which began after a shock in war; he was 168 cc. in height and only 33 kg. in weight.—J. K.

Constitution and surgery, with special regard to the ENDOCRINE glands (Konstitution und Chirurgie unter spezieller Berücksichtigung der endokrinen Drüsen). Kocher (A.), Schweiz. med. Wchnschr. (Basel), 1923, **53**, 223-240.

A critical discussion of constitutional endocrinology. Its length, general nature and wealth of details render it impossible satisfactorily to abstract.—R. G. H.

(ENDOCRINE) Hormone of muscle tissue. Komaroff (S. A.), Wratschebnoje delo, 1921, No. 1-6; 11-15; abst., Ber. ü. d. ges. Physiol. (Berl.), 1922, **13**, 231.

Accepting the theory that all cells of an organism produce a hormone, the author investigated the muscle tissue in this respect, and studied its relationship to the functions of glandular mechanisms. The effect of nitrogenous bases of muscle tissue on secretions of intestinal glands of a dog with an intestinal fistula, if injected intravenously or subcutaneously was proven by Thiry-Vella and Glinsky-Pawlow. In 15 experiments on 3 dogs carnosin was found to be a strong stimulant for secretory and motor functions of the intestine. Histidine affected it similarly, although in general in a somewhat weaker manner. Methylguanadine stimulated not only the intestinal secretion, but also secretions of the stomach, salivary glands, pancreas, liver and other glands. The author believes that all secreted material of the muscle tissue reaches the blood and affects the organism as an active hormone in the same manner as adrenalin and other incretions.—R. G. H.

(ENDOCRINE) Some physical properties of blood serum in health and disease (Over eenige physiche eigenschappen van bloedserum von gezonden en zieken). Koopman (J.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1923, **67 (I)**, 264-275.

Among 800 determinations of the coagulation point of serum some endocrine diseases were included. In diabetes the coagulation point of the serum is normal; in coma or shortly before coma this point may suddenly become much lower. In Graves' disease when the cases are not severe the coagulation point is normal. Extremely low temperatures of coagulation were found in rabbits in which by an iodine-free diet, thyroid degeneration had been produced.

—Author's Abstract.

Neurogynecological diseases and their relation to the ENDOCRINE organs (Neurogynäkologische Krankheitsbilder in ihren Beziehungen zur inneren Sekretion). Landeker (A.), Ztschr. f. ärztl. Fortbild. (Jena), 1922, **19**, 494-497.

A somewhat uncritical review.—J. K.

(ENDOCRINE) Pathogenesis of spasmophilia (Pathogenese der Spasmophilie). Lederer (R.), Monatschr. f. Kinderh. (Leipz.), 1923, **25**, 394-409.

Infantile spasmophilia is, according to the author, a constitutional abnormality caused by a primary disturbance of the equilibrium between Na and K ions and Ca and Mg ions, with a marked

increase of Na and K and a decrease of Ca and Mg. The changes in the H ion concentration found in the blood and tissues are secondary, due to toxic amino bases, etc. Whether this disturbed equilibrium is caused by loss of **parathyroid** function or whether spasmophilia produces changes in other endocrine glands also is unknown.—J. K.

ENDOCRINE disturbances and nitritoid crises. Lévy (G.), Juster & Lafont, Ann. d. mal. vén. (Par.), 1923, **18**, 127-132.

The authors found that accidents in arsphenamin injections are more likely to occur in patients with endocrine troubles. Changes in the **thyroid** gland may occur during treatment. Irregular menstruation, fleeting edemas, other vasomotor disturbances, and endocrine symptoms should put the physician on his guard against arsphenamin accidents. **Epinephrin** is an excellent remedy against them. Asthenia, fatigue in the morning, and apathy are among the minor signs of insufficiency of the **suprarenals.**

—J. Am. M. Ass., **80**, 1416.

(ENDOCRINE) The question of a gastric hormone. Lim (R. K. S.), Quart. J. Exper. Physiol. (Lond.), 1922, **13**, 79-103.

Edkin's observation that pyloric extracts cause gastric secretion, is confirmed. **Adrenalin** does not inhibit secretion but may delay its outflow from the stomach. Histamine injected intravenously causes gastric secretion. It is concluded that the excitant is not secreted into the blood stream and that the mechanism of secretogogue action is not due to internal secretion.—T. C. B.

(ENDOCRINE) Etiology and pathogenesis of vitiligo (Etiologie et pathogénie du vitiligo). Lindberg (K.), Thèse de Par., 1923; abst., Presse méd. (Par.), 1923, **31**, 68.

Vitiligo in some conditions is considered as due to disturbance in the sympathetic system or in the incretory glands—for instance, **Graves' disease.** The appearance of vitiligo in several nervous affections can also be explained as a sympathetic or endocrine-sympathetic disturbance.—R. G. H.

(ENDOCRINE) Sugar tolerance in dementia praecox and other mental disorders. Lorenz (W. E.), Arch. Neurol. & Psychiat. (Chicago), 1922, **8**, 184-196.

Except in cases of active catatonia, certain cases of simple deteriorating dementia praecox and several cases in which evident emotional upsets existed at the time of the test, this investigation points to a blood sugar concentration in mental disease that is practically normal when the test is made while the patient is fasting, the average being 0.105%. Patients with the catatonic type of dementia praecox respond to glucose feeding with a hyperglycemia that resembles the response obtained in **hyperthyroidism.** Several cases of simple deteriorating dementia praecox responded to glucose feed-

ing in a manner that resembles the responses obtained in certain endocrine disturbances, such as **dyspituitarism.** In the depressed phase of manic-depressive insanity the curve was higher than found in normal subjects.—C. E. N.

The INTERNAL SECRETIONS as an etiological therapy in the dermatoses of puberty and the climacteric (Die Beeinflussung der inneren Sekretion als ätiologische Therapie bei Dermatosen der Pubertät und des Klimakteriums). Luithlen (F.), Med. Klin. (Berl.), 1921, **17,** 217-220.

The author's success with **thyroid** therapy in the treatment of a case of seborrhea, comedo and acne juvenilis in a boy of 17, led him to try organotherapy, usually combined organotherapy with colloid therapy, in skin disorders at puberty and the menopause. Among the cases successfully treated were pruritus universalis in a woman of 62 (**ovarian** extracts), pruritus vulvae in a woman of 47 (ovarian extracts), furunculosis in a woman of 24 (colloid therapy alone), eczema acneiforme (colloid therapy), acne conglobata in a woman of 24 (colloid and **pituitary** therapy), acne rosacea in a woman of 48 (colloid and ovarian extract), etc. The author discusses the relation of the skin to the various incretory glands, although the treatment he advises, as would appear in the case reports, is obviously at least semi-empiric.—E. N.

(ENDOCRINE) DUCTLESS GLANDS and their relation to vital phenomena. Mackay (A. W.), Dominion Dent. J. (Toronto), 1921, **33,** 297-302.

(ENDOCRINE) Basal metabolism. Marañon (G.) & Carrasco (E.), Ann. de méd. (Par.), 1923, **13,** 124-147.

Marañon and Carrasco find a distinct diagnostic and prognostic value in determination of basal metabolism only in affections of the **thyroid.** It usually allows the differentiation of them from pathologic states grouped under the heading of "pseudohyperthyroid vegetative neuroses." **Sex** glands and the **pituitary** act in the same sense as the thyroid. If the disturbances of their function are associated with hypothyroidism or hyperthyroidism, the influence of the thyroid changes prevails, even if the other glands are affected in the opposite sense.—**J. Am. M. Ass., 80, 1545.**

A new kind of INTERNAL SECRETION: neurocrinology (Sur un nouveau mode de sécretion interne: la neurocrinie). Masson (P.) & Berger (L.), Compt. rend. Acad. d. sc. (Par.), 1923, **176,** 1748-1750.

A further addition to the terminology—a subdivision of "neurocrine glands" and "neurhormones" in which the interstitial cells are particularly considered.—A. T. C.

Developmental hypoplasia in children with especial reference to ENDOCRINE dysfunction. McCready (E. B.), Arch. Pediat. (N. Y.), 1923, **40**, 287-306.

The author attempts to show that practically all disorders, functional and organic, have constitutional inferiority as the most important etiological factor and that even in the presence of some of the exciting factors the state of constitutional and organic integrity is the factor which determines severity and limitation. The cells of the endocrine system, imperfectly energized, fail to function to normal capacity and the ensuing deficiency in hormonic stimulation of important structures results in further defective development. McCready agrees with Sajous that the treatment of endocrine insufficiencies in the mother is one of the important measures in the prophylaxis of the hypoplasia originating or accentuated during the gestational period.—M. B. G.

ENDOCRINE organs and the vegetative nervous system in children's diseases (Endokrines System und vegetatives Nervensystem in der Klinik der Kinderkrankheiten). Mensi (E.), Monatschr. f. Kinderh. (Leipz.), 1923, **25**, 440-453.

A pharmacological study of children proved that though there are a few cases of either vagotonia or sympathicotonia, most cases show symptoms of both. Vagotonia was seen in a case of **Graves' disease**, 1 case of myxedema, 2 cases of idiocy and 3 cases of **diabetes insipidus**.—J. K.

The ENDOCRINE glands (Las glàndulas endocrinas e de secretión interna). Molina (R. D.), Rev. Filipina de med. y farm. (Manila), 1921, **12**, 221, 261.

(ENDOCRINE) Discussion on "the present position of organotherapy." Murray (G. R.), Proc. Roy. Soc. Med. (Lond.), 1923, **16**, 14-17 (Sec. Therap. & Pharmacol.).

This paper is one of a series constituting a symposium on the present day tendencies in organotherapy. **Thyroid** substance is a specific in the various forms of frank thyroid deficiency. It is also useful in chilblains (especially if combined with calcium), in some menstrual disorders, nocturnal eneuresis, tertiary syphilis, some skin lesions, and in certain forms of constipation. The **parathyroid** glands are concerned in calcium metabolism and perhaps in the stimulation of leucocytosis especially during septic conditions. Parathyroid may therefore be administered during infections in doses of 1/10 gr. of dried gland by mouth. The **suprarenal** glands present many problems. Substitution therapy with suprarenal substance in Addison's disease is incapable of permanent results. Nevertheless the value of **adrenalin** in various conditions in medicine such as hemorrhage, shock, asthma, and in esophageal spasm, is striking. **Pituitary**, too, cannot be employed in substitution therapy, but the action of pitui-

trin subcutaneously as a stimulant of involuntary muscle fibers is marked. In sluggish uterine contractions in obstetrics, in functional distension of the bowels, and as a cardiac stimulant in such acute conditions as pneumonia, pituitrin is of signal service. **Gonadal** preparations are of doubtful value in therapeutics. Though removal of the **testicles** and of the **ovaries** result in conditions commonly regarded as due to absence of internal secretion of the gonads, there is no definite evidence to prove that eunuchoidism can be overcome by testicular extract or that post-operative menopause can be averted by taking ovarian tablets. The discovery of **insulin** in the study of **pancreatic** opotherapy leads us to hope that further researches may yield new and useful information in the field of organotherapy. In preparations of the thyroid, parathyroid, pancreas, suprarenal and pituitary, we have agents of proved value. In the case of the other endocrine glands, while recognizing the importance of their functions, we cannot fairly claim that we know as yet how to obtain or employ active preparations made from them. The recent exploitation of organotherapy for all kinds of diseases is deplorable, as it tends to discredit a valuable means of treatment when properly employed.

—I. B.

(ENDOCRINE) An epidemic of osteomalacia in "Klein-Polen" in the years 1918-20. Orzechowski (K.), Abhandl. polnisch. Akad. d. Wissensch. (Warschau), 1922, **1**, 314-360.

The author observed, in the period 1918-20, 93 cases of osteomalacia; 10 of these subjects were men, the others women. Orzechowski does not believe that starvation plays a rôle in the pathogenesis of osteomalacia; on the contrary, these patients may be overfed. It is not the amount of food ingested, the author states, but its composition that is important. Especially vegetable food with little or no fat and meat may cause osteomalacia. The following classification is proposed: (1) alimentary osteomalacia; (2) osteomalacia due to pregnancy; (3) osteomalacia due to or during lactation; (4) osteomalacia due to the menopause; (5) senile osteomalacia; and (6) osteomalacia in which no apparent cause can be detected. Though many investigators deny the identity of endemic and sporadic osteomalacia, Orzechowski believes that all these forms are identical. Osteomalacia is found only in patients of a certain disposition, depending largely on the relations between the different parts of the involuntary nervous system, and these patients become ill, the author thinks, when they are infected with the osteomalacia virus. As this is a typical pluriglandular disease, it is stated that the osteomalacia virus has a special affinity towards the **hypophysis**, the **parathyroids** (as a certain relation between tetany and osteomalacia seems to exist) and the sex glands. As to treatment, phosphorus, especially, may be valuable. Only when this remains unsuccessful

is castration advocated. Of his 93 cases, ablation of the **ovaries** was performed only 3 times—in each case with brilliant success.—J. K.

ENDOCRINOLOGY and psychology. The endocrine sympathetic system according to the modern analysis of human personality. II. The endocrine sympathetic factors in personality (Endocrinologia e psicologia. Il sistema endocrino-simpatico nell'analisi moderna della personalita umana. II. Il determinismo endocrino-simpatico della personalita). Pende (N.), Quaderni di psichiat. (Genova), 1921, **8**, 209-228; abst., Ber. ü. d. ges. Physiol. (Berl.), 1922, **14**, 250-251.

An attempt to classify the endocrine and autonomic factors determining personality.—E. C. A.

ENDOCRINE organs and coagulation of blood. Perrin (M.) & Hanns (A.), Arch. d. mal. du coeur etc. (Par.), 1922, **15**, 617-640 (September).

Most of the organs have both a coagulating and anti-coagulating action. Perrin found a simple coagulating action in the **thymus**, spleen, bone marrow and kidney. A similar but much more intense action was manifested by the **pituitary**, bowel, lung, skin and **ovaries**. Similar action of the **thyroid** may be perhaps due to the internal secretion.—J. Am. M. Ass., **79**, 2195.

The endocrine influence of the LIVER on diuresis (Uber die hormonale Wirkung der Leber auf die Diurese). Pick (E. P.) & Wagner (R.), Wien. med. Wchnschr., 1923, **73**, 78-82.

Wagner has described (Ztschr. f. d. ges. exper. Med., 1921, **25**, 361) the case of a girl of 9 who suffered with tumor of the liver and with symptoms of very marked **hypothyroidism**. In this child water metabolism was carefully studied. It was severely disturbed. When 250 gm. water was given only 160 gm. was excreted by the kidneys. The excretion of urea was also very low. Since no known function of the liver can explain this symptom, the authors concluded that the liver has an endocrine function regulating the water and urea metabolism.—J. K.

BLOOD SUGAR regulation (Beitrag zum Studium der Blutzuckerregulation). Pollak (L.) & Wagner (R.), Med. Klin. (Berl.), 1923, **19**, 430-432.

Wagner reported (Biochem. Ztschr., 1922, **127**, 55) the case of a girl of 10 years with a tumor of the liver and pluriglandular disturbances. Blood sugar on the empty stomach was exceedingly low. After administration of sugar there was marked and long lasting hyperglycemia with glycosuria. When proteins were given the blood sugar became normal or slightly subnormal. Ingestion of fat had no influence on the blood sugar. When **adrenalin** was injected the sugar remained unaltered also. When **thyroidin** was given the

blood sugar increased gradually up to normal. This child had the appearance of a patient with diabetes. From investigations of sugar metabolism in this patient the authors concluded that the intensity of alimentary hyperglycemia depends upon the rapidity with which sugar is resorbed from the bowels into the blood, and the quantity of endogenous sugar present in the blood and in the liver. After ingestion of a quantity of glucose, repeated later, typical blood sugar tracings are observed. In healthy persons a second dose does not produce a second rise. The tissues (liver, blood) can eliminate sugar quickly when they have already been stimulated by a previous dose; but it is also possible that after a second dose of sugar the liver retains this substance and does not give it off to the blood the second time. Staub has formulated a new theory to explain this fact. He believes that after repeated administration of sugar the liver produces more enzymes to build up glycogen or to oxidize sugar. Pollak and Wagner, however, have advanced another theory in explanation of the fact that a second dose of sugar does not produce a second rise of blood sugar, namely, that the first dose of sugar produces a decreased production of sugar by the liver. This theory explains the metabolic changes in the patient above mentioned. On the empty stomach the patient has but a small quantity of sugar in the blood and therefore the liver gives only very little sugar to the blood.—J. K.

Effects of ENDOCRINE disorders in obstetrics (Les endocrinopathies dans leurs rapports avec l'obstétrique). Ramos (A. P.) & Perez (M. L.), Rev. españ. de obst. y ginec., 1922 (April); abst., Rev. franç. de gynéc. et d'obst. (Par.), 1923, **18**, 62 (Jan.)

DUCTLESS GLANDS in relation to certain dermatoses. Ravitch (M. L.), Illinois M. J. (Oak Park), 1923, **43**, 201-203; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1099.

Some aspects of ENDOCRINOLOGY. Reed (C. I.), Kansas M. Soc. J. (Topeka), 1923, **23**, 65-67; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1270.

(ENDOCRINE) Precocious puberty. Reuben (M. S.) & Manning (G. R.), Arch. Pediat. (N. Y.), 1922, **39**, 769-786; ibid., 1923, **40**, 27-45.

A review of the literature (about 400 cases) is given. The authors conclude that in a great majority of cases precocious puberty is due to functional hypersecretion of certain glands, and in the minority of cases, to malignant growth in certain of these glands. They have not encountered a single case at autopsy or operation in which a primary dysfunction of the **pituitary** gland was found; they think, therefore, that the evidence in cases of pituitary precocity is not conclusive. Not a single case of **thyroid** precocity came to autopsy in which the condition was due primarily to the thyroid.

It may be secondarily involved, however. The glands which can primarily produce permanent sex precocity are the **adrenal** cortex, **pineal** and the **ovaries** and **testicles**. Precocious puberty is not only a sexual precocity but also a total precocity which involves the whole body and all its organs. It is not a distinct entity. The authors present in detail the symptomatology of the condition as it varies with the gland affected. Eight personal cases are reported.

—M. B. G.

(ENDOCRINE) Behavior disorders in children. Rhein (J. H. W.), Penn. M. J. (Harrisburg), 1923, **26**, 388-394.

Of indirect endocrine importance in that occasional types of behavior disorders in children are partially traceable to disturbed function of the organs of internal secretion.—I. B.

ENDOCRINE balance. Sands (M. L.), Missouri State M. Ass. J. (St. Louis), 1923, **20**, 24 (January); cit., J. Am. M. Ass. (Chicago), 1923, **80**, 507.

(ENDOCRINE) Influence of incretions upon hibernation (Uber den Winterschlaf und seine Beeinflussung durch die Extrakte innersekretorischer Drüsen). Schenk (P.), Arch. f. d. ges. Physiol. (Berl.), 1922, **197**, 66-80.

The author measured the respiratory exchange of hibernating hedgehogs with a Guerber modification of the Haldane open circuit apparatus. He found that during the period of deepest hibernation the respiratory quotients varied from .41 to .65 and the CO_2 output per kg. per hour varied from 1.449 to 1.484 grams. Subcutaneous injection of extracts, presumably commercial, of the **thyroid, thymus,** anterior lobe of **pituitary** and **adrenalin** caused a marked rise in heat production, often producing complete awakening of the animal, the respiratory quotient rising following the injections as high as .83 in 2 to 3 hours. Extract of the posterior lobe of the pituitary had no effect, likewise **testicular** extracts (testiglandol) were without effect, while ovarian extracts (ovoglandol) distinctly raised the heat production. The work in general confirms the more extensive studies of Adler. Schenk concludes that hibernation results from a correlated depression of the incretory glands.—D. M.

Interrelations of the glands of the INTERNAL SECRETIONS. Scott (J. T.), J. Kansas M. Soc. (Topeka), 1922, **22**, 67-71.

The intrasecretory relationship between some ENDOCRINE glands and the uterus. A combined pathological condition of the uterus (metritis cavernosa), the THYROID and the ADRENALS [Zur Frage der intrasekretorischen Wechselbeziehungen einiger endokrinen Drüsen und des Uterus. Eine Kombinierte Erkrankung des Uterus (Metritis cavernosa) der Schilddrüse und der Neben-

niere]. Serdjukoff (M. G.), Arch. f. Gynäk. (Berl.), 1923, **118,** 561-585.

A case report with much speculative discussion.—F. S. H.

Common symptoms of divers ENDOCRINE origin (les symptomes endocriniens communs). Sézary (A.), Presse méd. (Par.), 1922, **30,** 1075-1076.

Sézary discusses the need of establishing the cardinal symptoms referable to lesions of each of the endocrine glands through carefully interpreted anatomical and clinical studies. He warns against the indiscriminate acceptance of so-called pluriglandular symptoms, although there is an interaction between the endocrine glands, and lesions of one gland may give rise to disturbances in another. He shows that many basic symptoms of endocrine insufficiency may be of totally different origin. Abnormal pigmentation of the skin, which is commonly considered evidence of **suprarenal** inadequacy is also found in hepatic disease, in **hyperthyroidism,** in tumors of the **pituitary,** and in diseases of the **gonads** when microscopic examination fails to reveal any lesions of the suprarenal glands. Asthenia and obesity myopathies are common features of many and divers endocrine syndromes. True **infantilism** may be referable to the thyroid, the **hypophysis** (Souques and Chauvet) to the gonads (Variot, Gandy, Cordier and Rebattu), to the liver (Gilbert and Fournier), and even to the suprarenals (Morlot). **Gigantism** may be of hypophyseal or of **testicular origin.** Macrogenitalism is at times caused by tumors of the suprarenal cortex (Bulloch and Sequeira). Virilism and hirsutism result from lesions of the suprarenals (Lannois, Pinard and Gallais), of the **ovary** (Tuffier, Weil, Plichet, Achard and Tiers), of the **pineal** (Sicard and Hagueneau), or of the pituitary (Blair Bell). Disturbances of hair growth may be caused by insufficiency of the thyroid or of the testicle. Some symptoms attributed to the endocrine glands may not be referable to these glands at all. Sézary wishes to establish the conception of "common" endocrine symptoms in contrast to pluriglandular symptoms, though the two conceptions do not exclude each other, as both are based on anatomical and clinical findings.—G. L.

ENDOCRINE organs and the intestinal tract (Endokrine Drüsen und Verdauungsapparat). Singer (G.), Wien. klin. Wchnschr., 1923, **36,** 273-276.

The influence of the endocrine glands on the intestinal tract is undeniable. As proof of this fact the author mentions the diarrhea in **Graves' disease** and the atony of the intestines in myxedema. Thyroid preparations are sometimes useful in cases of intestinal atony. The **sex** glands also are closely associated with the bowels. In the menopause very severe disturbances of the bowels are observed, such as hemorrhages from the bowels which are sometimes

so profuse as to suggest a tumor of the bowels. **Ovarian** preparations in these cases, however, are often unsuccessful. Singer found that good results may sometimes be obtained with extracts of **hypophysis**, a gland which affects the bowels as well as the ovary. In men there seems to be a relation between the **testes** and the bowels, but our knowldge is too insufficient along this line to allow clinical conclusions.—J. K.

(ENDOCRINE) Avitaminosis and experimental lesions of the mesenteric nerves (Avitaminosi e lesioni sperimentali dei nervi mesenterici). Spadolini (I.), Arch. di fisiol. (Florence), 1922, **20**, 165-190.

Among other effects following complete section of the mesenteric nerves in cats were atrophy of the **pancreas**, which appeared reddish in color, a sclerosed regressive condition of the **thyroid**, and hypertrophy of the **adrenal** with fatty degeneration especially of the **cortex**. The results are compared with conditions in avitaminosis, and are discussed in connection with Findlay's theory (Biochem. J., **15**, 104; J. Path. & Bacteriol., **24**, 175) that when the tissue content of vitamin B falls below a certain level the phosphorized lipoid is immobilized in the adrenal cortex instead of passing to the central nervous system.—A. T. C.

ENDOCRINE factor in electric excitability. Specht (O.), Beitr. z. klin. Chir. (Tübing.), 1923, **128**, 25-54.

Specht gives 14 pages of tabulated data of extensive experiments on guinea-pigs to determine whether removal of one or several endocrine glands would modify spastic conditions. The experiments were numerous and diverse, but the findings were constantly negative. They do not sustain in any way Brüning's recent suggestion that removal of the **suprarenals** might favorably affect epilepsy.—J. Am. M. Ass., **80**, 1185.

Disorders of ENDOCRINE function. Spencer (J. H.), J. Roy. Army Med. Corps (Lond.), 1923, **40**, 205-511.

A general review of specific tests.—A. T. C.

The action of ENDOCRINE extracts on blood catalase (Ueber die Einwirkung von Organextrakten auf die Blutkatalase). Steppuhn (O.) & Timofejewa (A.), Biochem. Ztschr. (Berl.), 1923, **136**, 213-223.

Freshly drawn rabbit blood was incubated with extracts of various organs of the same species and the catalase activity determined and compared with controls. It was found that extracts of all the organs had the power to increase the catalase activity of rabbit blood. Among the organs studied were the **spleen, liver, adrenals, thymus** and **thyroid**.—F. S. H.

Production of hormones by the ENDOCRINE glands in vitro (Production d'hormones par les glands endocrines in vitro). Stern (L.) & Battelli (F.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 573-575.

An attempt was made to ascertain in general whether incretory cells separated from the organism retained the faculty of producing their specific hormones. A method of cultivating the tissue is described, and the results obtained from preliminary experiments with the **adrenal** medulla show that strips of the gland suspended in the blood of the same species and oxygenated continue to produce adrenalin. The same is true for the **spleen** and **testicle**.—T. C. B.

ENDOCRINES in pregnancy. Stone (W. E.), Kansas M. Soc. J. (Topeka), 1922, **22**, 304; cit., J. Am. M. Ass. (Chicago), 1922, **79**, 1638.

(ENDOCRINE) Clinical value of basal metabolism in infancy and childhood. Talbot (F. B.), Arch. Pediat. (N. Y.), 1922, **39**, 419-431.

In the majority of instances the basal metabolism at puberty is normal, but in a few instances it is increased. The elevated metabolism is found only in those children with visibly enlarged **thyroids**, most commonly in girls, and at times may be as high as 30 plus. Such patients may also show some of the milder signs of toxic goiter but as a rule the symptoms are not severe and they probably represent a temporary hyperthyroidism of puberty. The carbohydrate tolerance in **diabetes mellitus** is so low that prolonged under feeding is necessary in order to prevent acidosis. Basal metabolism determinations give values slightly less than the minimum number of calories consistent with continued life. The basal metabolism is increased in hyperthyroidism and decreased in hypothyroidism and **cretinism**. Talbot claims that a diagnosis of the latter condition can be made in very early life by means of basal metabolism determinations. The dosage of thyroid can be controlled by aid of these determinations. Basal metabolism in **mongolianism** varies. In some cases it is low and indicates that the condition is associated with a hypothyroidism which requires thyroid medication. Backward children with a low basal metabolism should be given thyroid preparations. In cases of association of **pituitary** and thyroid gland dyscrasias, we must conclude that low basal metabolism means a deficiency of the thyroid as there is no positive evidence that the pituitary gland effects basal metabolism. Basal metabolism determinations are of value in cases of hyperthyroidism treated by x-rays as an indicator of when to discontinue treatment. Their use must be stopped when the basal metabolism is still above normal so as

not to induce hypothyroidism. In toxic goiters there is an increase in basal metabolism while in non-toxic goiters the rate is normal. —M. B. G.

Insufficient nutrition and ENDOCRINE disturbances (Unternährung und innere Secretion). Tallqvist (T. W.), Acta med. Scand. (Stockholm), 1922, **56**, 640-657.

Not the quality but the insufficient quantity of food is probably the most important factor in the dyscrasic diseases known from the war. The endocrine glands are very sensitive to inanition. Sehrt and Peiser have shown that the people of Central Europe suffered from hypothyroidism and hypoadrenalism during the blockade. Organotherapeutic remedies could not be prepared in Germany because the animals gave very bad preparations. According to the author diseases of an endocrine nature—**diabetes mellitus** and **exophthalmic goitre**—have shown a remarkable change in frequency in Finland during this time. In Finland food was scarce during the years 1916-1919, and especially in 1918-1919. The author has found that the frequency of the above mentioned diseases was considerably decreased during this period as compared with the years 1912-1916 and 1919-1922. He has obtained an average body weight for each year by weighing all of his patients. The curve demonstrating the decrease of the body weight during the inanition-period runs parallel with the curves of the diseases mentioned.—H. B.

Visual troubles and disturbances of the glands of INTERNAL SECRETION (Troubles visuels et altérations des glandes à sécrétion interne). Terrien (F.), Arch. d'opht. (Par.), 1922, **39**, No. 12 (Dec.); abst., Presse méd. (Par.), 1923, **31**, 204.

(ENDOCRINE?) Scleroderma in bands with extensive pigmentation (Sclérodermie en bandes avec pigmentaires multiples). Thibierge (G.) & Rabut, Bull. Soc. franç. de dermat et de syph. (Par.), 1921, **28**, 174-176.

(ENDOCRINE) Internal secretions in their relationship to mental disturbance. Tucker (B. R.), Am. J. Psychiat. (Balt.), 1922, **2**, 259-273 (October); cit., J. Am. M. Ass. (Chicago), 1922, **79**, 2190.

Pluriglandular ENDOCRINE insufficiency and myositis (Pluriglanduläre endokrine insuffizienz und Myositis). Viessmann (A.), München. med. Wchnschr., 1922, **69**, 1383-1384.

Case report.—J. K.

(ENDOCRINE) Discussion on "The present position of organotherapy." Vincent (S.), Proc. Roy. Soc. Med. (Lond.), 1923, **16**, 10-24 (Sec. Therap. & Pharmacol.).

A discussion on the facts and especially the fallacies of current views on organotherapy. Vincent urges that ultra conservatism is by far a lesser evil than unbounded enthusiasm. An occasional good

result from a given remedy is no ground for its general adoption. The cure cannot be proved to be due to the remedy in question, for suggestion, too, plays its part. We must all endeavor to avoid the ancient **post hoc ergo propter hoc** stumbling block in treatment. **Thyroid** medication deserves its place in the treatment of thyroid hyposecretion and in some cases of goiter and obesity. Such conditions as rheumatism, rickets, mental disease and epilepsy are occasionally reported to have been benefitted by thyroid opotherapy. This is probably due to a stimulation of the chemical activities of the body and not through any specific, direct influence. **Parathyroid** medication is of doubtful value. Parathyroid implantation may be of service in tetany, but the oral administration is probably useless. In this connection we must bear in mind that aside from cases due to the actual operative removal of the parathyroids, there is no satisfactory evidence that tetany is due to a lesion of the parathyroid bodies but is a name applied to a condition arising from a great variety of causes. **Pituitary** medication is rather doubtful in value in so-called pituitary disease. Symptoms formerly attributed to lesions of the pituitary body are in reality probably due to injury to the hypothalamus. Though posterior pituitary preparations are valuable in **diabetes insipidus** and as an aid in contraction of the uterus, and also in meteorism, these are not instances of "substitution therapy" and have no bearing on the functions of the organ. **Adrenal** medication is emphasized in the use of adrenin by the profession. "But this value bears a very problematic relation to the function or functions of the adrenal body as a whole, or to the services possibly rendered to the animal economy by the chromaphil tissues." This, again, is not substitution therapy. In Addison's disease adrenal substance does not seem to be of the slightest value. Adrenin, given by mouth, does not produce the slightest effect in health or disease, unless perhaps on the mucosa of the stomach. **Testicular** and **ovarian** medication, given by mouth, are practically useless. Administered subcutaneously, there may be observed a nonspecific irritation or stimulating effect which may result from the administration of other organs and tissues. Vincent mentions the Steinach and Voronoff operations as procedures of improved merit. With regard to testicle transplantation, he points out that unless blood-vessel suture is employed and material from human beings or anthropoid apes is used, grafting is at best a temporary expedient. **Pancreatic** medication has not proved to be of any value in the treatment of **diabetes. Insulin** is still in the experimental stage, but it seems that a step in advance has been made, and possibly we will soon have a substance for diabetic patients comparable in specificity to thyroid extract in myxedema. Finally, the author believes that the only existing instance of substitutional therapy is thyroid administration, but that possibly the pancreas may soon be

included in this category. However, such substances as adrenin and posterior pituitary are valuable drugs, apart altogether from the question of internal secretion. The rest of the gland and tissue preparations do not deserve mention except that their exploitation on the present-day scale constitutes a very formidable kind of quackery. "There is no subject upon which so much utter nonsense has been talked as upon internal secretion, and organotherapy, or at any rate a large part of it, may be defined as the application of this nonsense to practical medicine. In the meantime certain firms of manufacturing druggists are making the most of a unique opportunity and are growing rich by reason of the inadequate education of medical practitioners and the notorious ignorance of the general public on all matters relating to their own bodies."—I. B.

INCRETORY glands and their anatomo-pathological changes in epilepsy (Ghiandole a secrezione interna e loro alterazione anatomo-pathologiche nella epilepsia). Vizioli (F.), Ann. di nevrol. (Napoli), 1921, **38**, 209-235.

(ENDOCRINE) Ateliotic dwarfism. Weber (F. P.), Internat. Clin. (Phila.), 1921, **31S**, 91-96.

A report of two cases of ateliosis, i. e., dwarfism due to incomplete development. In both cases there was retardation of mental development. Though largely due to **pituitary** involvement, the pathogenesis is probably of pluriglandular origin. The first case described is a male 53 years old, whose height in stocking feet is 47½ inches. At 45, the patient weighed 58 3/10 pounds stripped. His head is slightly oversize, his sexual organs are undeveloped, his voice is high pitched, but the expression, the wrinkled face, the attitude and general behavior are somewhat those of an adult. His mental development is that of the average child of 8. There seem to be some associated evidences of **hypothyroidism.** The second case is that of a male of 35, who is 51 1/5 inches in height, and weighs 66 pounds. His bodily development is less than that of a boy of 10. His limbs are long in proportion to the trunk, and the head is somewhat large. There is sexual underdevelopment. The history indicates that the patient was normal up to the age of 8, and then ceased to grow. He has never been able to earn a living. His mental development corresponds to that of a boy of 9.—I. B.

(ENDOCRINE) Theory on the hormone rôle of the synovial fluid in regeneration of sinews (Zur Theorie über die hormonartige Wirkung der Synovia auf die Schnewregeneration). Wehner (E.), Zentralbl. f. Chir. (Leipz.), 1922, **49**, 1467-1468.

Bier has proposed a theory, that in cases in which cut tendons do not show regeneration the synovia produces hormones retarding regeneration. Wehner was never able to show the existence of such substances.—J. K.

(ENDOCRINE) Osteomalacia. White (E. P. C.), Arch. Int. Med. (Chicago), 1922, **30**, 620-628.

A discussion of this disease in man, monkeys, other animals and birds; especially its etiology, whether a vitamin deficiency, a metabolic disorder or primarily an endocrine dysfunction.—H. L.

Anaphylactic reactions and the ENDOCRINE glands (Colloïdoclasie et glandes endocrines). Widal (F.), Abrami (P.) & de Gennes (L.), Presse méd. (Par.), 1922, **30**, 385-388.

Widal, Abrami and de Gennes show by means of a detailed clinical history and prolonged observations that endocrine anomalies are the substratum on which anaphylactic manifestations develop. A woman, aged 40, had suffered for 26 years from typical attacks of idiopathic asthma, with severe, spasmodic attacks of dyspnea, but without any pathologic changes of the respiratory tract. The attacks were elicited by divers contributary causes, especially by inhalation of the scent or the pollen of roses; the endocrine basis of the attacks could be traced definitely to disturbances of **thyroid** and **ovarian** function. They began at the age of 14, simultaneously with menstruation, disappeared temporarily at the age of 23 during pregnancy, returned after delivery, and changed their character completely after the sudden appearance of the menopause at the age of 37. During the climacteric the severe, intermittent attacks of dyspnea gave place to a chronic form of dyspnea. Typical myxedema developed. Although no asthmatic crises had occurred for 3 years the sensitization to the pollen of roses persisted. An attack produced by roses led to a transient immunity; an inhalation of rose scent for 15 minutes later was followed by a much milder attack and a third attempt after another 15 minutes produced no symptoms at all. Blood counts made at intervals of one minute during the attacks revealed a sudden drop of the leucocytes and this leukopenia invariably preceded the attack by a few minutes. Ingestion or hypodermic administration of atropin (4¼ mg. by mouth at one-half hour intervals, 1 mg. subcutaneously) were found to prevent both leucopenia and dyspnea when the roses were smelled 15 minutes after administration; but subcutaneous injection of 1 mg. epinephrin had no effect whatever. The possibility of a so-called "psychic asthma" was excluded experimentally—artificial roses produced no symptoms. Under treatment with thyroid extract in increasing dosage (30 centigrammes daily were given finally) the early morning dyspnea, the sensitization to roses and all the symptoms of myxedema disappeared completely. Attention is called to the striking fact that sensitization to the pollen of roses, an anaphylactic phenomenon, yielded to thyroid medication and to the clinical data concerning the sexual cycle, which justify the assumption that thyroid insufficiency existed long before it became strikingly mani-

fest, and that it played an important part in the anaphylactic reactions.—G. L.

The ENDOCRINE factor in mental disease. Wilson (J. L.), Proc. Roy. Soc. Med. (Lond.), 1923, **16**, 21-30 (Sec. Psychiat.).

An excellent review of the relationship between body and mind with the endocrine organs as the intermediary. The article does not lend itself to abstracting and should be read in its entirety to be fully appreciated. The author concludes as follows. (1) The gross changes in behavior characteristic of mental disease have not up to the present time been correlated with any definite lesion in the nervous system, therefore it is justifiable to look elsewhere for the underlying cause of mental symptoms. (2) The endocrine glands and their apparently close relationship with the primitive instincts and emotions offer a field of study which may be prolific in results to the alienist as well as to the physiologist. (3) There is evidence that the system of endocrine secretions may be affected pathologically by both psychical and physical causes. (4) The endocrine system may prove to be the mechanism through which mental disease is produced.—I. B.

The action of extracts of ENDOCRINE glands upon motor nerve and muscle. Yoshimoto (M.), Quart. J. Exper. Physiol. (Lond.), 1922, **13**, 5-40.

Within the concentration range of 0.1% and 1%, all the endocrine gland extracts produce a slight depression of excitability in frog's nerve. The conductivity of the nerve is not affected. There is very feeble or no effect on muscle.—T. C. B.

The influence of TESTICULAR extracts on some chemical properties of the blood (Ueber den Einfluss des Testikular-Extraktes auf einige chemische Eigenschaften des Blutes). Alpern (D.), Biochem. Ztschr. (Berl.), 1923, **136**, 542-550.

(GONADS) Milk secretion in virgins (Contributo allo studio della secrezione lattea nelle vergini). Amistani (E.), Nuovo Ercolani (Torino), 1921, **26**, 126-128.

Of little endocrine interest. Breast secretion in a virgin bitch was observed after she had suckled 5 puppies. There was no modification of the reproductive apparatus.—P. N.

Influence of temperature on the action of the TESTICULAR hormone (Influence de la température sur l'action de l'hormone testiculaire). Aron (M.), Compt. rend. Acad. d. sc. (Par.), 1923, **177**, 141-143.

Experiments on tritons show that low temperatures permit the prolonged maintenance of sexual characters after castration, while heat accelerates the regression. Since those animals subjected to cold show no signs, even after a long delay, of slowed involution,

but signs of evolution indicating the continuity of action of the hormone, it is concluded that it is the residual hormone itself remaining after castration which is affected by the temperature.

—A. T. C.

(GONADS) Retardation of senility (Steinach's method); its theory and practice. Benjamin (H.), N. Jersey M. Soc. J. (Orange), 1922, **19**, 315-320 (November); cit., J. Am. M. Ass. (Chicago), 1922, **79**, 2034.

(GONADS) Interstitial cells of the TESTICLES of the domestic cock. Evolution and structure (Sur les cellules interstitielles du testicule du coq domestique. Evolution et structure). Benoit (J.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1382-1384.

Histological.—T. C. B.

(GONADS) A method for measuring the absolute mass of TESTICULAR interstitial tissue (Sur une méthode permettant de mesurer la masse obsolue du tissu interstitiel testiculaire). Benoit (J.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1385-1387.

Technical.—T. C. B.

(GONADS) The quantitative relation between the TESTICULAR interstitial tissue, the seminal tissue and the mass of the body in birds and some mammals (Sur les rapports quantitatifs entre le tissue interstitiel testiculaire, le tissu séminal et la masse du corps chez les oiseaux et quelques mammiferes). Benoit (J.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1387-1390.

Technical.—T. C. B.

(GONADS) The physiological conditions relative to the periodical nuptial adornment of birds (Sur les conditions physiologiques relatives à la parure nuptiale périodique ches les oiseaux). Benoit (J.), Compt. rend. Acad. d. sc. (Par.), 1922, **174**, 701-704.

Study of two tropical species Pyromelana franciscana and Hypochera chalybeata led to the conclusion that there exists a direct correlation between the state of the **testicular interstitial gland** and nuptial adornment, and that when the sexual character regresses or is absent these interstitial cells present the morphological characters of almost complete functional repose. There is no such parallelism with the seminiferous tubules.—A. T. C.

Unusual contents of OVARIAN cysts—Report of two cases. Bolt (W.), Canad. M. Ass. J. (Toronto), 1923, **13**, 250-252 (Apr.).

The case is reported of a woman of 61. The observations were made 11 years after the menopause. A large irregular, nodular, abdominal tumor, uterine hemorrhage, free abdominal fluid and marked loss of weight were noted. Examination of the tumor disclosed a dermoid cyst, with the usual contents of hair and teeth

plus "typical normal thyroid tissue." The case is also described of a subject of 35 years, having 5 children. A right-sided movable pelvic tumor was removed. Examination revealed a dermoid cyst; one part on "microscopic section showed cells very like those of the cortical layer of the adrenal gland." Cameron reported that "the dermoid cyst tissue appeared to consist of adrenal, chiefly yellow cortex, with a small dark streak of what appeared to be medulla." One sample was 0.26% adrenalin.—J. H.

(GONADS, HYPOPHYSIS) Drugs and basal metabolism. Boothby (W. M.) and Rowntree (F. G.), J. Pharmacol. & Exper. Therap. (Balt.), 1923, **21**, 198-99.

The effect on basal metabolism of various drugs including ovarian extract and solution of hypophysis was studied. The authors do not believe the experiments sufficient in number to eliminate the possibility of slight variation in metabolism—up to 5 per cent—but think they do exclude variations of greater magnitude occurring within 90 minutes after administration.—G. E. B.

(GONADS) The effects of castration in relation to age at time of operation. Bormann (F.), Skandin. Arch. f. Physiol. (Leipz.), 1922, **42**, 240-249.

The effect of castration on the penis in the guinea-pig is dependent upon the age of the animal at the time of castration. In the rabbit the retrogressive changes are independent of the age of the animal at the time of castration.—G. E. B.

The rôle of the interstitial gland of the TESTICLE. Response to Gley and Pézard (A propos du rule de la glande interstitielle du testicule. Response à MM. Gley et Pézard). Bouin (P.) & Ancel (P.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 758-760.

Transplantation of TESTES. Brandt & Lieschied, Ztschr. f. urol. Chir. (Berl.), 1923, **12**, 460-467.

Brandt and Lieschied report 4 cases in which a testis was transplanted. No influence was apparent in 2 of the young men and the man, aged 52, but the fourth man, aged 29, was improved, but only transiently. Experiments on dogs confirmed degeneration of the testis into a cicatricial tissue.—J. Am. M. Ass., **80**, 1820.

OVARIAN extracts. Bru (C.), Bull. méd. (Par.), 1923, **37**, 430; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1814.

Influence of loss of vision on the function of the TESTES and on the external sex characters (Der Einfluss der Sehkraft auf die Funktion des Hodens und auf die äusseren Geschlechtscharaktere). Ceni (C.), Arch. f. Entwcklngsmechn. d. Organ (Berl.), 1922, **51**, 504-508.

Brain lesions in adult male chickens produce transitory changes in the testes and external sex characteristics. This is most marked

when the operation is done in the autumn and winter. After about 3 months of blindness the tubules of the testes have greatly atrophied while the interstitial cells have increased. Simultaneous with these changes are marked somatic changes in the feathers, comb, etc., and the animal stops crowing. Then there is a return towards normal. The loss of sexual characters during hyperplasia of the interstitial cells is cited as evidence against the assignment of a specific function to the interstitial cells.—A. T. R.

(GONADS) On the secondary sex characters in amphibia (Sur les caractères sexuels annexes chez les amphibiens). Champy (C.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 55-57.—T. C. B.

(GONADS) Sexual characters in fishes [Observations sur les caractères sexuels chez les poissons (avec demonstration)]. Champy (C.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 414-417.

The author thinks that the interstitial tissue plays no part in the development of sex characters in fish.—T. C. B.

(GONADS) Demonstration. Champy (C.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 852.

(GONADS) Fluctuating appearance of secondary male characters in female Tritons. (Apparition fluctuante de caractères sexuels mâles chez Triton alpestris femelle). Champy (C.), Compt. rend. Acad. d. sc. (Par.), 1922, **175**, 1443-1444.

In certain female tritons, after egg-laying, male characters appear for a week or two, the animal then regaining a normal appearance. The phenomenon is correlated with total absence of ovocytes of large size, indicating an inhibiting influence of the ovary on certain male characters.—A. T. C.

(GONADS) OVARIAN therapy. Clark (J. G.), Progr. Med. (Phila.), 1921, **2**, 229-230 (June).

A brief résumé of a paper by Graves on this subject (N. York M. J., 1920, **112**, 697), presenting this author's views on the results of ovarian therapy. Ovarian extracts are advocated for the treatment of hot flushes, menstrual irregularities and functional amenorrhea. In dysmenorrhea this plan of treatment is unreliable. For menorrhagia and metrorrhagia it is not indicated.—E. N.

(GONADS) OVARIAN transplantation. Clark (J. G.), Progr. Med. (Phila.), 1921, **2**, 228-229 (June).

A brief description of Blair Bell's technique of transplantation. In the human being all grafts must be autoplastic. After removal of the ovaries, the ovarian tissue for grafting is dropped into the bottom of the pelvis to be kept warm and moist until required for grafting. It is criss-crossed with a knife into adherent fragments after removal of the albuginea. The graft may be placed in the

rectus muscle. Bell strongly advocates grafting in suitable cases, but looks upon it as a measure of necessity, not comparable to preservation of the natural functions of the ovary.—E. N.

(GONADS) The interstitial cells of the TESTICLE and the secondary sex characteristics in the fish (Glande interstitielle du testicule et caractères sexuels secondaries chez les poissons). Courrier (R.), Compt. rend. Acad. d. sc. (Par.), 1921, **172**, 1316-1317.

Correction of Endocrin., 1922, **6**, 877.

(GONADS) The genital cycle of the female of certain hibernating mammals (Le cycle genital de la femille chez certain mammiferes hibernants). Courrier (R.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1365-1367.

A study of the oestrus cycle in the bat, which has but one a year. During 7 months the bat shows the following phenomena: rut, secretion of the uterus and oviduct, hyperplasia and keratinization of the vaginal epithelium.—T. C. B.

(GONADS) The glandular cycle of the epithelium of the oviduct in the dog (Le cycle glandulaire de l'épithelium de l'oviducte chez la chienne). Courrier (R.) & Gerlinger (H.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1363-1365.

The tubal epithelium in the dog possesses a glandular cycle of remarkable clearness which is in chronological relation with the ovarian processes.—T. C. B.

Delayed symptoms of OVARIECTOMY and the physiologic menopause (Accidents tardifs de la castration ovarienne et ménopause physiologique). Daléas (P.), Thèse de Toulouse, 1922; abst., Rev. franç. de gynéc. et d'obst. (Par.), 1923, **18**, 64 (Jan.).

The author has reference particularly to the delayed symptoms which appear at the normal time of the menopause in cases in which castration has been previously performed. The disorders are chiefly nervous and are due to a general endocrine decay occuring at that time.—E. N.

(GONADS) Relations of endocrine glands with genital organs (Les relations des glandes endocrines avec les organes génitaux). Daniel (C.), Rev. franç. de gynéc. et d'obst. (Par.), 1923, **18**, 99-100 (Feb.).

Interstitial cells in the TESTIS of the Annelids, Stilaria and Lumbricus (Les cellules interstitielles dans le testicule d'Annélides, Stilaria et Lumbricus). Dehorne (A.), Compt. rend. Acad. d. sc. (Par.), 1923, **176**, 1674-1676.

(GONADS) Case of eunuchoidism. A pluriglandular syndrome with typical "lean geroderma genito-distrofico" (Un caso de eunucoidismo. Sindrome pluriglandular, con hipogenitalismo congénito pre-

dominante, realizando el tipo geroderma génitodistrófico magro de Rummo y Ferranini). Echevarne (C. L.), Semana méd. (Buenos Aires), 1923, **30**, 219-222.

Numerous symptoms of hereditary syphilis were found.

—B. A. H.

OVARIAN pathogenesis of chlorosis (Pathogénie ovarienne de la chlorose). Etienne (G.), Rev. méd. de l'est (Nancy), 1922, **50**, No. 10 (May 15); abst., Presse méd. (Par.), 1922, **30**, 936.

Since 1896 Spillmann and Etienne have considered chlorosis as due to vitiation of ovarian function. They consider it, on one hand, as a toxic disturbance caused by amenorrhea and the non-elimination of the toxic products of the feminine organism, and, on the other hand, as a profound disturbance of general metabolism, of nutrition of the tissues and of the condition of the blood,—caused by insufficient ovarian incretion. That this conception is correct has been demonstrated, Etienne states, by the effect of opotherapy on the number of red cells, on urinary metabolism and on health in general. He believes that the corpus luteum is the incretory gland of the ovary. Histologically, therefore, the ovary can be considered as a gland of internal secretion after the formation of the first corpus luteum. If the ovary does not function at the physiological moment chlorosis appears. The author believes it probable that before the ovary has begun to function its activity is carried on by a more precociously developed organ, perhaps the **thymus.** If this gland disappears too early or if the ovary develops its internal secretions too late chlorosis is seen. Thus, all circumstances capable of interrupting the normal development of the ovaries become etiologic factors in chlorosis. Ovarian opotherapy is advocated for chlorosis, with the addition of iron which the author thinks is fully effective only when taken along with the opotherapeutic treatment.—R. G. H.

(GONADS) A case of ectopic TESTICLE in the bat [Note sur un cas d' ectopie testiculaire chez ca chauve-souris (Vesperugo pipistrella)]. Faure (C. L.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1147-1148.

Histological.—T. C. B.

(GONADS) Concerning a free-martin. Firth (R.), Vet. J. (Lond.), 1921, **77**, 340-342.

The influence of the GONAD hormones on the seminal vesicles. Fisher (N. F.), Am. J. Physiol. (Balt.), 1923, **64**, 244-251.

The seminal vesicles in rats and guinea pigs are not reservoirs for spermatozoa or prostate secretion. The cells of the mucosa indicate secretory activity and transplantation to other parts of the body does not interfere with this secretory activity. Early bilateral castration inhibits the growth of the vesicles; later castration causes

atrophy without total inhibition of secretion. The seminal vesicles are not affected by the presence of ovarian grafts in normal males.
—T. C. B.

X-ray stimulation in hypofunction of the OVARY (Uber Reizbestrahlung bei Hypofunktion der Eierstöcke). Flatau (W. S.), Zentralbl. f. Gynäk. (Leipz.), 1922, **46**, 1602-1606.

In infantilism, medical treatment of amenorrhea or dysmenorrhea never gives a good result. Special symptoms are seen in these subjects: swollen face, adiposity, symptoms as in the menopause, psychical irritability, etc. Van der Velde, Momm and others have advised the use of x-rays in so-called stimulating doses. The author tried this treatment in 38 subjects and in 26, regular menstruation was obtained in 3-6 weeks. This treatment is indicated only in cases in which the abnormal menstruation is caused by hypofunction of the ovary; x-ray therapy should not be used in adiposogenitalis.—J. K.

(GONADS) Organotherapy of menstrual disorders (Opothérapie des troubles menstruels, opothérapie lutéique dissociée). Fouliot (L.), Paris méd., 1922, **12**, 434-437 (November 11); cit., J. Am. M. Ass. (Chicago), 1922, **79**, 2197.

(GONADS) The endocrine function of the sexual organs and its practical importance (Uber die innere Sekretion der Keimdrüsen und ihre praktische Nutzanwendung). Fraenkel (L.), Ztschr. f. ärztl. Fortbild. (Jena), 1922, **19**, 585-590.

The author believes that the function and nutrition of the entire sexual apparatus depends upon the incretion of the **ovary** or **testicle.** Another function of the ovary which is dependent upon its internal secretion is the preparation of the mucous membrane of the uterus for the insertion of the ovum. This last function is carried out especially by the **corpus luteum.** It is remarkable that insufficiency of one or more endocrine organs never causes hyperfunction of the ovary, but that, on the other hand, hypofunction of the ovary immediately causes hyperfunction of the whole endocrine system. Fraenkel feels that in spite of the extensive literature on the subject, little is actually known concerning the incretory glands and their interrelations.—J. K.

Functional significance of the interstitial cells of the TESTIS (Zur Frage der funktionellen Bedeutung der Hodenzwischenzellen). Frankenberger (Z.), Anat. Anz. (Jena), 1922, **55**, 545-550.

A brief description of the finer structure of the testis of a lizard (Lacerta vivipare Jacz.).—A. T. R.

The action of heat ray on TESTICLES. Fukui (N.), Jap. Med. World (Tokyo), 1923, **3**, 26-28.

Heat applied to the scrotum of the rabbit always caused typical regressive changes in the generative cells of the testicles. Such testicle the author designates as "heat testicle." In the production of heat testicle there is a definite relation between temperature and time, the highest temperature used being 48° C. and the lowest, 40° C., i.e. body temperature. At the higher temperatures the changes occur rapidly and below 44° C. the rate of change is greatly lengthened. When the exposure is all given at one sitting the changes occur much more rapidly than when they are given on succeeding days. Midsummer sunlight caused a similar effect within 3 hours. This was only partly avoided by the use of a cotton covering. These changes are important in Japan because of the type of clothing and the custom of taking very hot baths. The author raises the question whether a thermolabile spermatogenous protein is the reason for the descent of the testicle, what effects modern clothes and hygiene have upon this and what effect the "heat testicle" has on other endocrine glands.—R. G. B.

(GONADS) Conservatism in the treatment of "essential uterine hemorrhage." Geist (S. H.), Surg. Gynec. & Obst. (Chicago), 1923, **36**, 383-384 (March).

Report of 4 cases of atypical bleeding, in which the uterus was grossly normal, and in which both ovaries were found to be diseased (cystic). Good results followed resection of both ovaries.—E. N.

(GONADS) Syndromes associated with OVARIAN disorders (Les syndromes dûs aux troubles ovariens). Gheorghiu (E.), Rev. franç. de Gynéc. et d'obst. (Par.), 1923, **18**, 98.

No new facts.—E. N.

OVARIAN secretion in parabiosis. Goto (N.), Tokyo Igakkwai Zasshi, 1922, **36**, No. 9; abst., Jap. Med. World (Tokyo), 1923, **3**, 12; see also, Arch. f. exper. Path. u. Pharmakol. (Leipz.), 1922, **94**, 124-128.

Matsuyama observed an interesting change occurring in the ovary of a parabiosis of a castrated and a normal animal, and also after injection of the blood from a castrated rat into a normal rat. This substance may be present to some extent in the normal animal. The author has not isolated the substance causing this change. —R. G. B.

An attempt to obtain rejuvenation by transplantation of a TESTICLE taken from a corpse (Ein Verjüngungsversuch mit Transplantation von Hoden, die einer Leiche entnommen wurde). Gregory (A.), Zentralbl. f. Chir. (Leipz.), 1922, **49**, 1326-1327.

A man of 68 complained of being easily tired, of difficult breathing and loss of sexual desire. The author transplanted into this subject a testicle from the corpse of a man who had died with

tuberculosis—these patients generally have increased sexual desire. The testicle was divided into 2 parts which were implanted on both sides between the obliquus muscles, external and internal, and the transverse abdominal muscle. The patient was cured; he lost his feeling of exhaustion and regained the sexual desires he had had when 40. The author states that although the results seem very good it is not known how long the improvement will last.—J. K.

(GONADS) Application of Steinach's method in zoötechnics. Its value in rejuvenation of reproduction (Aplicación del metodo de Steinach en zootecnia. El rejuvenecimiento de reproductores). Grosovich (J. M.), Rev. zootéc., 1921, **8**, 183-185.

Steinach's method of rejuvenation might be tried by cattle breeders to bring about reproductions among cattle otherwise too old.—B. A. H.

(GONADS) Psychology in castrates (Testicule et psychologie des castrats). Grynfeltt, Bull. Acad. d. sc. de Montpellier, (1921) 1922, 38-40.

(GONADS) Sex stimulation and rejuvenation (Das Problem der Geschlechtsumstimmung und die sogenannte Verjüngung). Harms (W.), Naturwissenschaften (Berl.), 1921, **9**, 184-189.

(GONADS) Present status of the puberty gland. Hart (C.), Med. Klin. (Berl.), 1922, **18**, 803 (June 18); cit., J. Am. M. Ass. (Chicago), 1922, **79**, 2043.

(GONADS) Relation of the OVARY to the gravid uterus in the aplacental opossum. Hartman (C.), Am. J. Physiol. (Balt.), 1923, **63**, 423-424 (Proc.).—T. C. B.

(GONADS) Solid carcinoma of the OVARY. Hoon (M. R.), Ann. Surg. (Phila.), 1922, **76**, 768-776 (December); cit., J. Am. M. Ass. (Chicago), 1923, **80**, 354.

(GONADS) Clinical and experimental studies on the transplantation of the TESTICLES. Ishiyama (F.), Iji Shimbun (Tokyo), 1922, No. 1102 (September).

The author's trial transplantation of the isogenic testicle in a human case proved negative. All cases of the testicle transplantation in the rabbit resulted in necrosis. Of all the cellular elements of the testicle the one that had the most remarkable resistance was the spermatozoa, which lived long after the seminal tubules and the interstitium had necrosed. Both Sertoli's cells and the seminal cells died out very soon. Leydig's cells also died out as soon as the interstitium necrosed. However, rapid necrosis occurred if a piece, the whole or the epididymis of the testicle has been transplanted.
—Jap. Med. World, **2**, 348.

Pathological changes in the GONADS in constitutional diseases, particularly marasmus (Patologisch-anatomische Veränderungen der Keimdrüsen bei Konstitutions-krankheiten, insbesondere bei der Pädatrophie). Jaffe (R.), Verhandl. d. deutsch. path. Gesellsch. (Jena), 1921, **18**, 204.

See Endocrin., **6**, 567.

Influence of castration on the structure of the PANCREAS and THYROID (Uber den Einflusz der Kastration auf den Bau der Bauchspeicheldrüse und der Glandula thyreoidea). Kanewskaja (E. I.), Verhandl. d. Russ. Path. Ges. (Petrog.), 1920, **11**; abst., Ber. ü. d. ges. Physiol. (Berl.), 1922, **14**, 176.

In castrated animals the author noted hypertrophy of the islands of Langerhans and of the thyroid gland. The experiments will be reported in detail in other articles to follow.—R. G. H.

(GONADS) Theory concerning the interstitial cells (Theoretisches zur Zwischenzellenfrage). Kolmer (W.), Klin. Wchnschr. (Berl.), 1922, **1**, 2022.

The author does not consider the interstitial cells as endocrine organs, nor does he believe that their function is trophic. He believes that the male cells protect the male organism against substances of female origin and vice versa. In bats the sperm remains in the uterus for 6 months, and, therefore, these animals have enormous numbers of interstitial cells.—J. K.

Action of alcohol on the interstitial cells of the TESTICLE (Action de l'alcool sur la glande interstitielle du testicule). Kostitch (A.), Internat. Ztschr. gegen. d. Alkoholismus, 1922, **30**, 134-138; abst., Ber. ü. d. ges. Physiol. (Berl.), 1923, **16**, 389.

The interstitial cells remain normal during the first changes in the epithelium, but as the degeneration of the epithelium increases the interstitial cells continue to increase in number, finally appearing between the tubules, which were before in apposition; pushing them ahead and crowding them apart until they are almost obliterated. Alcohol poisoning leads to hypertrophy of the interstitial glands. In a condition of long standing pigment atrophy of the interstitial cells sets in, leaving finally only heaps of pigment granules. The general condition of the animal is not affected thereby, and libido may remain rather strong. The author assumes that the hypertrophy is a direct result of alcohol, which also stimulates the interstitial cells in their defensive proliferation, this being favored by the shrinkage of the tubules. This reaction has damaging effects on the seminal elements.—R. G. H.

(GONADS) Tuberose sclerosis of the brain and hydrocephalus in relation to early puberty [La sclérose tubéreuse du cerveau (maladie de Bourneville) et l'hydrocéphalie dans leurs rapports avec la

puberté précoce]. Krabbe (K. H.), Encéphale (Par.), 1922, **17**, Nos. 5, 7, 8; abst., Presse méd. (Par.), 1923, **31**, Analyses 16 (April 7).

GONADS in 30 newborn goats. One case of true unilateral hermaphroditism (Eine Untersuchung der Geschlechtsdrüsen von dreiszig neugeborenen Ziegen. Ein Fall von wahrem unilateralen Hermaphroditismus). Krediet (G.), Anat. Anz. (Jena), 1922, **55**, 502-510.

Description of an **ovariotestis**. One seminiferous tubule even contained a primary ovarian follicle.—A. T. B.

TESTICULAR transplantation in human beings (Weitere Erfahrungen über Hodentransplantation beim Menschen). Kreuter (E.), Deutsche Ztschr. f. Chir. (Leipz.), 1922, **172**, 402-416; abst., Ber. ü. d. ges. Physiol. (Berl.), 1923, **17**, 64.

The results of experiments and observations made by the author were entirely negative. In 2 cases at the end of 2 years the transplanted organ had entirely disappeared. In another case the implantation of a heterosexual active testicle into a homosexual subject, castrated on one side, was ineffective, and the implantation of a homosexual testicle into a subject castrated on both sides, originally heterosexual, led to no success.—R. G. H.

(GONADS) MENSTRUATION—An inquiry into its etiology. Kross (I.), Am. J. Obst. & Gynec. (St. Louis), 1923, **5**, 285-287 (March).

The author concludes, from the evidence of two inconclusive clinical cases, that the **corpus luteum** is not the causative factor in menstruation, and that the mature graafian follicle is.—E. N.

Interstitial-like element in an accessory TESTICLE (Uber zwischenzellen-ähnliche Elemente im Nebenhoden). Kyrle (J.), Beitr. z. path. Anat. u. z. allg. Path. (Jena), 1922, **70**, 520-524; abst., Ber. ü. d. ges. Physiol. (Berl.), 1923, **17**, 375.

Occurrence of the interstitial cells of the TESTIS in the embryonic and postnatal life history of the guinea pig. Kudo (T.), Folia anat. Jap., 1922, **1**, 125-148; abst., Ber. ü. d. ges. Physiol. (Berl.), 1923, **17**, 22.

(GONADS) Infantile gigantism (Infantiler Riesenwuchs). Kundratitz, Wien. med. Wchnschr., 1921, **71**, 1814.

(GONADS) Androgenoids and gynandroids (Les androgynes et les gynandres). Laignel-Levastine, Progrès. méd. (Par.), 1920, **35**, 399-403.

(GONADS) A case of gynandrism similar to hypospadia (Sur un cas de gynandroïde simulant un hypospadias). Lepoutre (C.), J. d'urol. méd. et chir. (Par.), 1921, **11**, 229-231.

The definite result of transplantation of GONADS in man (Die Dauerverfolge der Hodentransplantation beim Menschen). Lichtenstern, Klin. Wchnschr. (Berl.), 1922, **1**, 2598.

See Endocrin., **5**, 807.

Hypertrophy of the INTERSTITIAL CELLS. The conditions governing its occurrence (Ueber die Hypertrophie der Zwischenzellen. Ihr Vorkommen und ihre Bedingungen). Lipschütz (A.) & Wagner (K.), Arch. f. d. ges. Physiol. (Berl.), 1922, **197**, 348-361.

Experiments on guinea pigs lead to the conclusion that hypertrophy of the interstitial cells, like that of the generative tissue, cannot be regarded as a compensatory reaction of the testes in their internal secretory function. In certain conditions the hypertrophy is great, and it is easily possible to distinguish whether an absolute increase of tissue mass is present. The local conditions governing the hypertrophy appear to be either retrograde development of the seminiferous tubules or good circulation, the latter probably acting directly through its acceleration of spermatogenesis. A general favorable condition of hypertrophy would seem to be the reduction of the testicular mass (partial castration) by which are accelerated spermatogenesis, retrograde development of the tubules, and commencement of hypertrophy of the interstitial cells.—A. T. C.

The effect of extirpation of the uterus on the life and function of the CORPUS LUTEUM in the guinea-pig. Loeb (L.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 441-443.

Extirpation of the uterus prolongs the life of the corpora lutea up to 60 days and even longer. These corpora lutea function normally in preventing ovulation and producing proliferation in the mammary gland. Hysterectomy does not prevent ovulation. If a small part of the uterus is left in place the sexual cycle remains normal.—J. C. D.

(GONADS) The mechanism of the sexual cycle and the specificity of growth substances. Loeb (L.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 443-445.

The author considers the cycle as consisting of 3 phases. In the first the changes in the animal are brought about by the maturing follicle. In the second phase there is a transition from the control by the follicle to the third stage, that governed by substances elaborated in the lutein cells. Evidence for this view is given, derived from observations on rats, mice, and guinea-pigs.—J. C. D.

Types of mammalian OVARY. Loeb (L.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 446-448.

Descriptions of the 3 types are given with a suggestion as to why the theca cells differ.—J. C. D.

(GONADS) Effect of PROSTATECTOMY on integration of muscular movements of the rat. Macht (D. I.) & Ulrich (J. L.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1922, **19**, 186-187.

In rats that had been trained to walk a tight rope, a removal of the prostate did not impair this ability. When the prostate was removed previous to training, however, rope walking was mastered only with difficulty and never as perfectly as in the controls. Feeding prostate improved this ability.—J. C. D.

(GONADS) Bisexual stages (Intersexuelle Zwischenstufen). Magnus-Hirschfeld, Deutsche med. Wchnschr. (Berl.), 1923, **49**, 500.

Recent biological and psychological studies confirm the theory given 24 years ago by the author that every man has predominant male with some female characteristics, and vice versa.—J. K.

Menopause age in Finnland (Uber das Alter der Menopause in Finnland. Eine statistische Studie). Malmio (H. R.), Acta soc. med. fennic. "Duodecim," 1921, **3**, 1-16; abst., Ber. ü. d. ges. Physiol. (Berl.), 1922, **12**, 133.

After a criticism of the modern statistics on the appearance of menopause in Finnland, the author gives 220 case histories of patients from an institution for the poor. The subjects were from 55 to 80 years old, had never undergone any chronic illness and could remember positively the occurrence of the menopause. The mean value for the menopause age was found to be 48.66 ∓ 0.36 years. For women of Finnland (160 cases) the mean value was 48.62 ± 0.42 years; of Swedish nationality (60 cases) 48.58 ± 0.69 years; thus the difference is rather insignificant. Menopause appeared somewhat late in women with one or two children, but in women having more children occurred a little earlier. The age at which menopause occurred seemed to be independent of the menarche age. Only the very early and very late variants of the series conformed to some law. Following this another investigation was made on subjects from the gynecological clinic of Helsingfors. The average found there was 48.53 ± 0.18 years, this average being in accordance with that of the first group. Various mistakes are likely to be made, however, in summarizing; if the dubious data are excluded from the statistics another average, 49.50 ± 0.24 years, is found. Since an investigation of the menopause age in the different gynecological disturbances, with the exception of malignant tumors, shows delayed menopause, it is doubtful whether the material from a gynecological clinic is suitable for the purpose of establishing an average national menopause age. The average menarche age in Finnland is 16.089 ± 0.050 years and the age of sexual maturity of women in Finnland is 32.5 years.—R. G. H.

(GONADS) The hypogenital hand (La main hypogenitale). Marañón (G.), Rev. de méd. (Par.), 1922, **39**, Nos. 10, 11; abst., Presse méd. (Par.), 1923, **31**, 187.

See Endocrin., **7**, 481.

(GONADS) A case of masculine spurious hermaphroditism (Un caso di ermafroditismo spurio maschile). Mariani (A.), Pensiero med. (Milano), 1921, **11**, 581-585.

In a bilateral hernia in a "woman" was seen two small, incompletely developed **testes.** External genitalia were normal except for the lack of the labia majora. The vagina was only 4 cm. in length. No uterus nor **ovary** was present. The secondary sexual characters were feminine. The author concludes that the sexual characters are related not only to the gonads, but also to some other gland.—P. N.

The interstitial cells of the OVARY of the new-born (Die interstitielle Eierstockdrüse beim Neugeborenen). Matsuno (J.), Ztschr. f. Geburtsh. u. Gynäk. (Stuttg.), 1923, **85**, 523-539.

The ovaries of some 25 new born or late fetal stage infants were studied histologically. The wide variability in apparent follicular development precludes adequate generalizations. The histological picture is not sufficiently convincing to permit the conclusion of an internal secretory function at this early age.—F. S. H.

The lipoids in the human OVARY (Ueber die Lipoide in menschlichen Ovarium). von Mikulicz-Radecki, Deutsche med. Wchnschr. (Berl.), 1922, **48**, 1192-1193; see also, Klin. Wchnschr. (Berl.), 1922, **1**, 1389-1390.

During the development from **corpus luteum** of menstruation to corpus luteum gravidarum and during the formation of the corpus atreticum the quantity and quality of the lipoids undergo important changes. As long as the cells function, lipoids containing nitrogen and phosphorus and optically active substances, such as mixtures of cholesterol and cephalin, are present. The first symptom of degeneration is the occurrence of neutral fats. These substances gradually increase and at last only neutral fats, fatty acids and soaps are found. The complicated lipoids, phosphatids, cerebrosids, cholesterol, the author considers as the hormones produced by the endocrine function of the lutein cells. They are identical with the ovarian lipoids which many investigators have used to demonstrate the influence of the ovary on the body. On the contrary, the lipoids in the **interstitial tissue** are products of degeneration. The theca lutein cells do not produce active lipoids.—J. K.

The effects of GONADECTOMY in the guinea pig, on growth, bone lengths, and weight of organs of internal secretion. Moore (C. R.), Biol. Bull. (Woods Hole), 1922, **43**, 285-312.

This paper gives a really critical study of the variations produced in total body weight and in the relative weights of certain organs by gonadectomy. A series of guinea pigs consisting of 12 normal and 11 castrated males and 12 normal and 11 spayed females was used. The operations were performed between the fifteenth and the thirtieth days of the animal's life and the observations covered a period of a year. The weights of the gonadectomized animals of this series were less than those of their normal controls, but the writer points out that there is so much individual variation that body weight is not a reliable criterion of sex gland conditions. The experiments indicate that gonadectomy in both sexes causes a slight reduction in the weight of the **hypophysis, adrenals** and **spleen,** and a slight increase in the size of the **thyroid.** Spaying seems to cause more increase in the length of the leg bones than does castration. The changes produced by the operation are not very marked and the author advises making more experiments of the same sort before attempting to formulate any general principles.—M. M. H.

Case of ectopia TESTES. Morson (A. C.), Proc. Roy. Soc. Med. (Lond.), 1923, **16,** 43-44.

(GONADS) Condition of sex organs in dementia praecox. Mott (F. W.), Encéphale (Par.), 1923, **18,** 73-85.

Mott has been studying since 1910 the findings in the reproductive organs in mental disorders, particularly dementia praecox. In 34 cases of general paralysis, spermatozoa were found nearly always present, while in 37 cases of dementia praecox, spermatozoa were found in only 2 cases out of 3. The reproductive organs are closely connected with other endocrine glands and his research on **suprarenal glands** has demonstrated that the medulla of these glands in dementia praecox shows vast deficiency in the genetic formative impulse.—J. Am. M. Ass., **80,** 1814.

Internal secretion of the human OVARY (La glande à sécrétion interne de l'ovaire humain). Moulonguet-Doléris (P.), Gynéc. (Par.), 1923, **22,** 129-162.

An anatomical and physio-pathological study of much detailed description. Microscopic study led to the conclusion that the principal depôt of the lipoids in the human ovary is not the **corpus luteum** but in a type of structure designated by the author as the "ovarian stroma." These lipoid formations are believed to be most important from the point of view of the endocrine physiology of the ovary. There is, however, a wide variability in the lipoid content of human ovaries. The variations are described in detail in the text. One particular type which is considered of physio-pathological significance is characterized by the coexistence of numerous masses of spongiocytic cells with pycnotic nuclei accompanied by many external cells of the corpus luteum. These cells are crowded with

labile lipoids. From a correlation of histological and clinical observations it is concluded that there is no direct and constant relation between the richness of the ovary in lipoids and uterine metrorrhagias, but that exaggerated mucous hyperplasia of the endometrium is often associated with hyperplasia of the ovary, as is fibromyoma.—F. S. H.

(GONADS) Sexual constitution and surgery (Sexualkonstitution und Chirurgie). Mühsam (R.), Deutsche med. Wchnschr. (Berl.), 1923, **49**, 500.

Sexual symptoms may be influenced by ablation of the testicles. The transplantation of a testicle may have a very marked influence which, however, is usually temporary. It is not known whether Steinach operations are effective. The author states that it may be possible to change sexual abnormalities by operation on the **adrenals, pineal, hypophysis** and **thyroid.** Up to this time practical surgery has not made investigations along this line.—J. K.

(GONADS) End results of TESTICLE transplantation (Endergebnisse der Hodenüberpflanzung). Mühsame (R.), Deutsche med. Wchnschr. (Berl.), 1922, **48**, 1341-1343.

Report of 6 transplantations in 5 patients. On April 6, 1918, a testicle was implanted in a castrated man. In November, 1918, there was return of libido. In March, 1919, he married and had normal sexual intercourse. A bisexual man of 20 was operated upon April 9, 1919. He soon had "heterosexual inclinations" and sexual intercourse. He married and became the father of a child. Testicle transplants were made twice in a homosexual man. After both operations there was a short heterosexual period, but there was no lasting affect. In a homosexual man one testicle was removed and another implanted. At first the operation did not seem to be a success, but 4 months afterwards the man was normal. In a eunuchoid 30 years of age the only effect of the transplantation was a number of erections for a short period after the operation.—J. K.

(GONADS) The relation between the internal secretion of the genital glands and skin diseases. Nakagawa (K.), Hifuka Hitsunyokika Zasshi, 1922, **22**, No. 9 (Sept.); cit., Jap. Med. World (Tokyo), 1923, **3**, 55.

The transplantation of human TESTICLES. Nakada (M.), Tokyo Iji-Shinshi, 1922, No. 2301 (Oct.); abst., Jap. Med. World (Tokyo), 1923, **3**, 31.

In a case of tuberculous epididymitis a testicle was transplanted. For a few months the effect was beneficient, then relapse occurred.

—R. G. H.

GONADS in the adult Rana fusca (Demonstratie van een volwassen testis van Rana fusca). van Oordt (G. J.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1922, **66** (II), 2223-2224.

The sex glands of Rana fusca first develop along female lines; therefore, it is not a rare occurrence to find ova in the testes. The author observed such a testicle.—J. K.

(GONADS) The summer involution of secondary sex characters of the plumage of the drake, and the parallel modification of its TESTICLES (Sur l'involution estivale des charactères sexuels secondaires du plumage chez le canard mâle et sur les modifications paralleles du testicules chez le même animal). Parhon (C. I.) & Parhon (Constance), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1227-1229.

Parallel with changes in color that come on about the first of August the testicles diminish in volume, spermatogenesis becomes less abundant, and there are changes in the cells. The interstitial gland is more developed than during the spring.—T. C. B.

(GONADS) A Steinach preparation for rejuvenation (Ueber Rejuven, ein Steinach-Präparat). Pariser (C.), Deutsche med. Wchnschr. (Berl.), 1922, **48**, 1384-1385.

The author reports without sustaining evidence successful use of a tablet containing the chemical components of the testicle.—J. K.

(GONADS) The castration of decapoda Crustaceans through Epicaridae parasites (Sur le castration des Crustacés décapodes parasités par des Epicarides). Perez, Compt. rend. Acad. d. sc. (Par.), 1923, **176**, 1934-1936.

These parasites exercise an indirect, harmful influence on the genital activity of their hosts. Where the parasite is installed before the development of sex characters in the host, as in Leander, Palaemon, Pandalus, etc., these characters can be profoundly modified, so that, for example, the abdominal appendices of the male approach the female type. Crabs are less affected, the incomplete castration being manifest in a varying degree of atrophy of the genital gland.
—A. T. C.

GONADS and the nervous system (Keimdrüsen und Nervensystem). Peritz, Deutsche med. Wchnschr. (Berl.), 1923, **49**, 500.

A short note.—J. K.

Conservation and transplantation into the uterus of an OVARIAN fragment after salpingectomy. Later pregnancy in one case (Conservation et transposition dans l'utérus d'un fragment d' ovaire après salpingectomie pour suppuration. Grossesse consécutive dans un cas). Petit (R.), Gynéc. (Par.), 1923, **22**, 43-44; see also, Rev. franç. de gynéc. et d'obst. (Par.), 1923, **18**, 58-59 (Jan.).

Report of 2 cases in which after salpingectomy a portion of an ovary was implanted into the uterus at the site of the emergence of the fallopian tube. The first patient, a woman of 32, menstruated regularly after the operation and became pregnant 2 years later. The second patient, a girl of 18, resumed menstruation 5 months after operation.—F. S. H.

Tumors of the interstitial gland of the TESTIS of the horse (Sur les tumeurs de la glande interstitielle du testicule du cheval). Peyron (A.), Compt. rend. Acad. d. sc. (Par.), 1921, **172**, 625-627.

Report of the general results of a histological study of 25 cases, unrelated to the functional conditions of the subjects. The histological condition is similar to that in homologous tumors in human testes.—A. T. C.

(GONADS) The "all-or-none" law and the gynandromorphism of birds (La loi "tout ou rien" et le gynandromorphisme chez les oiseaux). Pézard (A.), J. de. Physiol. et de path. gén. (Par.), 1922, **20**, 495-508.

The "all-or-none" law prevails—so far as the incretory genital tissue is concerned—above a certain minimum or threshold, below which the morphogenic effect is zero; the amount is sufficient to cause secondary sexual characters to appear and undergo complete development. The threshold is not the same for all these characters, however, and there is consequently a differential threshold for the different aspects of the secondary sex characteristics.—W. B. C.

(GONADS) The theory of the "threshold difference" and progressive masculinization in certain female birds (Notion de "seuil différentiel" et masculinisation progressive de certaines femelles d'oiseaux). Pézard (A.), Compt. rend. Acad. de sc. (Par.), 1922, **175**, 236-238; abst., Ber. ü. d. ges. Physiol. (Berl.), 1922, **15**, 480.

(GONADS) A "differential threshold" and humoral explanation of the gynandromorphism of bipartite birds (Notion de "seuil différentiel" et explication humorale du gynandromorphisme des oiseaux bipartis). Pézard (A.), Compt. rend. Acad. d. sc. (Par.), 1922, **174**, 1573-1576.

A theoretical discussion with no new evidence.—A. T. C.

Sex heredity in the Gallinae. Interpretation based on the existence of the neuter form and on the properties of the OVARIAN hormone (L'héridité sex-linked chez les Gallinacés. Interpretation fondée sur l'existence de la forme neutre et sur les propriétés de l'hormone ovarienne). Pézard (A.) & Caridroit (F.), Compt. rend. Acad. d. sc. (Par.), 1922, **175**, 910-912; abst., Ber. ü. d. ges. Physiol. (Berl.), 1923, **17**, 312.

(GONADS) Gynandromorphism in fowls (Les modalités du gynandromorphisme chez les gallinacés). Pézard (A.) & Caridroit (F.), Compt. rend. Acad. d. sc. (Par.), 1923, **177**, 76-79.

A white leghorn developed female characters at puberty; some weeks later these were transformed to male characters. Autopsy revealed 2 reproductive glands, one occupying the normal position on the left side and consisting of an infantile **ovary** showing masculine development with an infantile oviduct, the other symmetrically on the right side being a **testis** with abundant **interstitial tissue** and without a duct.—A. T. C.

(GONADS) ADRENAL-TESTICULAR interpenetration in cocks incompletely castrated. Pézard (A.) & Caridroit (F.), Compt. rend. Acad. d. sc. (Par.), 1922, **175**, 784-787.

Following incomplete castration can be observed invasion of accidental testicular transplants by adrenal medullary tissue, and the presence of seminiferous canals in the interior of the adrenal, which show signs of functional activity even after a year.—A. T. C.

(GONADS) Action of the TESTICULAR hormone on the relative value of allelomorphic factors in fowls (Dorset x Suffolk) [L'action de l'hormone testiculaire sur la valence relative des facteurs allélomorphes chez les ovins (Dorset x Suffolk)]. Pézard (A.) & Caridroit (F.), Compt. rend. Acad. d. sc. (Par.), 1922, **175**, 1099-1102.

Introduction of the neutral form and the testicular hormone into the genetic analysis of Dorset x Suffolk crosses leads to a clear interpretation of the facts.—A. T. C.

Torsion of the TESTICLE in a pseudohermaphrodite (Sopra un caso di torsione del testiculo osservata in un pseudo-ermafrodito). Pignatti (A.), Riforma med. (Napoli), 1921, **37**, 605-610.

Dermoid cyst of the OVARY containing THYROID. Cesarian section with ovariectomy (Kyste dermoïde de l'ovaire à contenu thyroïdien. Césarienne suivie d'ovariotomie). Plauchu & Gaudon, Bull. Soc. d'obst. et de gynéc. (Par.), 1923, **12**, 134-135.

(GONADS) Secondary sex characters in the male lizard (Sur les caractères sexuels secondaires chez le lézard male). Reiss (P.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 445-447.

(GONADS) Hermaphroditism in animals (Zur Frage des Hermaphroditismus beim Wildin). Reuter (M.), Ztschr. Forst Jagdwesen, 1922, **54**, 107-110; cit., Anat. Ber. (Jena), 1922, **1**, 21.

(GONADS) Recent studies on the relation of metabolism to sex. Riddle (O.), Anat. Record (Phila.), 1923, **24**, 418.

The **adrenals** of pigeons undergo marked hypertrophy coincident with each ovulation period. Accompanying this there is a marked

rise in **blood sugar.** Ova produced under treatment with **thyroid** substance become markedly and consistently smaller. **Thymus** feeding has no effect.—W. J. A.

Transplantation of an OVARIAN fragment into the uterus (Sur la transplantation dans l'utérus d' un fragment d'ovaire). Robineau, Gynéc. (Par.), 1923, **22,** 44-45.

Following Petit's technic, 2 subjects responded with increased menstrual flow, but no pregnancies occurred. Unilateral ovariectomy, accompanied by partial section of the uterus and removal of the tubes did not stop menstruation in 27 out of 28 cases.—F. S. H.

Types of rabbit OVARY from the physiological point of view (Les types d'ovaire de la lapine au point du vue physiologique). Salazar (A. L.), Compt. rend. Soc. de biol. (Par.), 1923, **88,** 838-840.

(GONADS) Some sex problems (Einige Geschlechtsprobleme). Sand (K.), Wchnschr. ü. d. Fortschr. in Wissensch. u. Technik (Frankfurt), 1922, **26,** No. 40.

See Endocrin., **7,** 273-301.

(GONADS) Vasoligature (epididymectomy) employed ad mod. Steinach with a view to restitution in cases of senium and other states (impotency, depression). Sand (K.), Acta chir. Scand. (Stockholm), 1922, **55,** 387-426.

(GONADS) Experimental hermaphroditism (l'hermaphrodisme expérimental). Sand (K.), J. de Physiol. et de path. gén. (Par.), 1922, **20,** 473-487.

An account of the production of hermaphroditic characters, somatic and psycho-sexual, in a considerable percentage of guinea pigs in which both **ovaries** and **testes** were present. These characters appeared whether the operation was performed on the animals while infantile, or at the age of puberty, or at the age of maturity and reproduction. In the last case the effects were especially marked on the **mammary** glands and on the psycho-sexual features.—W. B. C.

(GONADS) Alternating hermaphrodism. Sand (K.), J. d'urol. (Par.), 1923, **15,** 181-195; abst., J. Am. M. Ass. (Chicago), 1923, **80,** 1882.

Conservative operation for myoma with reference to the OVARIAN origin of myomal bleeding (Ueber Konservative Myomoperation mit besonderer Berücksichtigung des ovariellen Ursprunges der Myomblutungen). Schmid (H. H.), Ztschr. f. Geburtsh. u. Gynäk. (Stuttg.), 1923, **86,** 36-74.

(GONADS) Transplantation of OVARIES. Schochet (S. S.), Surg. Gynec. & Obst. (Chicago), 1921, **32,** 567.

A very brief record of two observations. The first pertains to

the eye of a pregnant rabbit in which is a transplanted ovary (a quadrant) showing no sign of ovulation. This concurs in part with the theory of L. Fraenkel. The second has to do with an ovum, artificially fertilized from a transplanted ovary and tube, an ectopic pregnancy.—E. N.

(GONADS) Substances which stimulate genital growth (Ueber Substanzen die das Genitale wirksam zum Wachstum anregen). Schroder (R.) & Goerbig (F.), Ztschr. f. Geburtsh. u. Gynäk. (Stuttg.), 1921, **83**, 764-786.

An extensive series of experiments in which the action of **placental** and **corpus luteum** preparations on uterine growth was studied. Stimulation was produced both in the females and in the male subjects (utriculus masculinus). Other glandular products produced no marked effects, except that liver extract seemed to be efficacious.—F. S. H.

OVARIAN transplantation in deficient genital function (Die Ovarien transplantation bei herabgestzter und fehlender Genital-funktion). Sippel (P.), Arch. f. Gynäk. (Berl.), 1923, **118**, 445-489.

Detailed clinical protocols of the results of ovarian transplantation in various cases of genital insufficiency. It was found that auto-transplantation retarded the climacteric phenomena of castration in young women for some years. Homotransplantation is recommended in **infantilism** and **hypo-ovarianism**, in young castrates and selected cases of early climacteric or senility. Libido and orgasm are almost always renewed after autotransplantation; after homoplastic transplantation the results are variable. The function of the autoplant lasts from 1 to 3 years; that of the homoplant not more than a few months. The most difficult cases are those in which the whole reproductive system has begun to retrogress. A deficient **thyroid** function is usually also present.—F. S. H.

(GONADS) The oestrus cycle in the oviduct of the sow (Le cycle oestrien dans l'oviducte de la truie). Spack (A.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 450-452.

Experimental studies of two important factors underlying masculin sexual behavior: the nervous system and the INTERNAL SECRETION of the TESTIS. Stone (C. P.), J. Exper. Psychol., 1923, **6**, 85-106.

The author attempts to consolidate the literature concerning the nervous system and the internal secretion of the testis as concerned in masculine sexual behavior. After reviewing the literature it is concluded that the copulary response of the male of higher vertebrates, considered from a neurological standpoint, is similar to those complex patterns of congenital behavior typified by the "scratch reflex" described by Sherrington. Although the brain and brain-

stem exert a regulatory influence over the copulatory response, there is no cortical center for its control. Erection and ejaculation are essentially a series of coordinated spinal reflexes involving the lumbosacral portion of the cord. The fundamental difference between the copulatory response and the "scratch reflex" is that the former depends upon a special gland for activation and regulation. That the internal secretion of the testes exerts its regulatory influence chiefly through the nervous system has been assumed but the mode and seat of action are unknown.—W. W. T.

(GONADS) Atrophy of the TESTES after extirpation of the abdominal sympathetic (Hodenatrophie nach Exstirpation des abdominalen Grenzstranges). Takahashi (N.), Arch. f. d. ges. Physiol. (Berl.), 1922, **196**, 237-242.

Sympathetic extirpation produces no effects on kidneys, **adrenals, ovaries,** the hinder skeletal bones, nor the arteries. The **testes** atrophy (guinea-pigs), weighing distinctly less than the control after one-sided operations, and showing histologically reduction of sperm-epithelium without increase of the intertubular connective tissue and the characteristic interstitial cells.—A. T. C.

(GONADS) Milk secretion. Takahashi (T.), Okayama Igakkwai Zasshi, 1922, No. 394 (Dec.); abst., Jap. Med. World (Tokyo), 1923, **3**, 53.

The author concludes that the **ovary,** especially the one containing the **corpus luteum,** causes enlargement of the **mammary glands** and that as soon as the fetus has been delivered, the stimulating substance of the ovary is no longer secreted, the mammary glands begin to contract and milk is secreted. The hormone, which is derived from the fetus and **placenta,** and which has been generally believed to be the hormone acting directly on the mammary glands, is not a substance which has a direct action on milk secretion. The hormone found in the pregnant blood is unlike that of the fetus and placenta. It is insoluble in either absolute alcohol or ether, but soluble in water and is yellowish white in color. It slightly augments the blood pressure, but does not act on the **uterus.** It is a simple nitrogenous compound.—R. G. B.

A case of bilateral malignancy of the TESTES. Tanner (C. O.), Calif. State J. M. (San Fran.), 1923, **21**, 55-56.

Report of a case of carcinomatous type of teratoma of the testicle in a man of 45. Due to metastasis the patient died.—I. B.

The results of ligation on the TESTICLE with special reference to the question of the puberty gland (Unterbindungsbefunde am Hoden unter besonderer Berücksichtigung der Pubertätsdrüsenfrage). Tiedje (A.), Verhandl. d. deutsch. path. Gesselsch. (Jena), 1921, **18**, 200; see also, Veröffentl. a. d. Kreigs-u. Konstitutions-

pathol., 1921, **2**, 1-26; see also, Zentralbl. f. allg. Path. u. path. Anat. (Jena), 1921, **31**, 200-201.

See Endocrin., **5**, 677.

(GONADS) Does menstruation influence blood concentration? Tyler (M.) & Underhill (F. P.), Am. J. Obst. & Gynec. (St. Louis), 1923, **5**, 155-158 (Feb.).

Studies on 11 healthy women, comprising 25 menstrual periods, failed to show a constant variation in the hemoglobin characteristic of any one phase of the menstrual cycle.—E. N.

(GONADS) Gynandroid hermaphroditism complicated by a dermoid cyst of the OVARY (Hermaphrodisme gynandroïde de l'ovaire). Uhlrich (P.), Soc. Anat., 1923 (January 6); abst., Presse méd. (Par.), 1923, **31**, 75.

(GONADS) Deficiency symptoms in the menopause due to x-rays (Wegoalverschijnselen bij Röntgenmenopause). Valken, Nederl Tijdschr. v. Geneesk. (Haarlem), 1922, **66 (II)**, 2429-2431.

Conclusions are drawn from observations of 100 cases. Vasomotor symptoms are as frequent after castration by operation as by x-rays. Heart symptoms typically caused by x-rays do not exist. After x-ray castration psychical and sexual symptoms are less frequent and not so intense as after castration by surgical procedure. X-rays never completely destroy the **ovarian** tissue; there always remain traces of endocrine activity; we ought not speak, therefore, of a real castration by x-rays. Ovarian adiposity after x-ray treatment is rare.—J. K.

Atresia of the follicular epithelium of the OVARY in mammals (Atrésie de l'épithélium folliculaire ovarique chez les mammifères). Velloso de Pinho (A.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 830-832.

(GONADS) TESTICLE grafts. Voronoff (S.), Riforma med. (Napoli), 1922, **38**, 1017.

Voronoff reports his experiments on animals dating from June, 1917, and on men since June, 1920. Even slices of testicles from cyocephalus monkeys implanted in human testicles gave good results. Although not pretending to explain the whole problem of senility by the atrophy of sexual glands, Voronoff believes that this is the main factor. The results depend very much on the site of the implantation. Voronoff prefers the peritoneum or the tunica vaginalis, because the transudation of plasma can keep up the nourishment of the graft before it is vascularized. Subcutaneous tissue and muscles cannot prevent a central necrosis, and the rest lasts merely for a few months. Voronoff opens the scrotum under local procain anesthesia and fastens the fragments of the implanted testicle at each end with catgut. The glandular surface faces the tunica vaginalis,

which is scarified as well as the tunica albuginea. The fragments must not touch each other. Too small fragments are absorbed. The undivided testicle can be implanted only if it is small and from young animals. (This is stated to be the complete paper prepared for the French Surgical Congress in October. It was debarred from presentation by publication of a summary of it in a daily paper just before the congress.)—J. Am. M. Ass., **80**, 66.

(GONADS) Basal metabolism and the menstrual cycle. Wakeham (G.), J. Biol. Chem. (Balt.), 1923, **56**, 555-567.

Ninety-eight basal metabolism determinations were made on 24 subjects under exceptional conditions of uniformity. Wakeham concluded that there is a distinct fall in basal metabolism during or immediately after menstruation which is preceded by a rise. Indications are that causes which produce too frequent menstruation are likely to be accompanied by high basal metabolism and that causes which delay or suppress menstruation are likely to be accompanied by a low basal metabolism.—F. S. H.

The histological changes in the OVARY during pregnancy (Ueber die histologischen Veränderung des Ovariums während der Gravidität). Walthard (K. M.), Ztschr. f. Geburtsh. u. Gynäk. (Stuttg.), 1923, **86**, 74-123.

The lipoids of the PLACENTA in the different months of pregnancy. (Ueber die Lipoidsubstanzen der Placenta in vershiedenen Schwangerschaftsmonaten mit besonderer Beruchtsichtigung ihrer Mengenverhältmisse). Watanabe (H.), Biochem. (Tokyo), 1923, **2**, 369-397.

A systematic fractionation of the lipoid substances of the placenta showed the presence of phosphatides, lecithin, cephalin, cholesterin, neutral fats, free fatty acids, and possibly sphyngomyelin and a cerebroside. The sex of the fetus has no influence on the distribution of the lipoids. During the course of pregnancy the absolute amounts of lipoids increase, but decrease relative to the growth weight of the fetus. The relation of the neutral fat content of the placenta to the weight of the fetus with development, however, remains practically a constant.—F. S. H.

(GONADS) A contribution to the study of the effects of radium upon rabbit OVARIES. Weis (H. A.), Surg. Gynec. & Obst. (Chicago), 1923, **36**, 373-382 (March).

The author's studies lead him to the conclusion that radium in the amount used (600 mg. hours) has no ultimate detrimental effect upon rabbit ovaries. No injurious effect upon the follicles was noted, the ovaries showing a normal histology, with ova in all stages of development. He believes that when radium is given intra-uterinely for menorrhagia, the resulting amenorrhea is not due to the

See Endocrin., **6**, 890.

effect on the ovarian follicles, but to the effect on the endometrium, which receives a severe burn from the radium.—E. N.

(GONADS) Histology of the corpus luteum of the human OVARY (Histologie du corps jaune de l'ovaire humain). de Winiwarter (H.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1240-1242.

The influence on the endocrine organs of x-ray treatment of the OVARY (Die Wirkung der Ovarialbestrahlung auf das innersekretorische System). Wintz, Klin. Wchnschr. (Berl.), 1922, **1**, 2353.

The influence of x-rays on the ovaries depends on the dosage. A certain dosage produces in effect, castration; when smaller doses are given sterilization is only temporary. This temporary sterilization is often very successful in **Graves' disease.** The author knows of 35 children born 3-5 years after temporary sterilization of the mother.—J. K.

(GONADS) Therapeutic use of orchitic extract in woman (Thérapeutique orchitique chez le femme). Zénope (B.), Rev. franç. de gynéc. et d'obst. (Par.), 1923, **18**, 119-124.

Thirteen patients reacted favorably as regards menstrual and nervous disorders to orchitic extract.—R. G. H.

A rare type of OVARIAN carcinoma (Ueber eine seltene Karzinomform des Ovariums). Zimmerman (R.), Ztschr. f. Geburtsh. u. Gynäk. (Stuttg.), 1923, **86**, 19-23.

An exceedingly powerful oxytocic and pressor substance obtained from the posterior lobe of the PITUITARY gland. Abel (J. J.), & Rouiller (C. A.), Tr. Ass. Am. Physicians (Phila.), 1923, May 1-2.

The posterior lobe of the hypophysis has been supposed not to have an internal secretion. Dixon, however, reports that he can find the posterior lobe principle in the spinal fluid and that, injected into an animal, it will increase the substance in the spinal fluid. Byrne also notes that the posterior lobe substance opposes the action of insulin. I believe that we have found that: (1) the posterior lobe principle raises arterial pressure and keeps it up for a long time; (2) it acts on muscle tissue, causing it to contract; (3) it has diuretic action; (4) it constricts the capillaries of warm-blooded and of cold-blooded animals; and (5) it has tonic action on plain muscle tissue. So far we have 2 well known active gland principles—**epinephrin** and **thyroxin.** Histamin is the most powerful plain muscle stimulant that we know of, a proportion of 1:200,000,000 causing contraction of the guinea-pig's uterus; but with this posterior lobe substance a proportion of 1:19,750,000,000 will produce the same result, that is, it is 1,250 times as powerful as histamin. We have now reached a point at which the product is 97% pure.

We hope that it will be of use in the isolation of other products, such as insulin and secretin.—J. Am. M. Ass., **80**, 1875.

(HYPOPHYSIS, THYROID) The influence of some hormones and proteinogenous amines on the bile-producing ability of the LIVER (Zur Frage der Wechselbeziehungen zwischen innerer und ausserer Sekretion. II. Ueber den Einfluss einiger Hormone und proteinogener Amine auf die Gallenabsonderungsfähigkeit der Leber). Alpern (D.), Biochem. Ztschr. (Berl.), 1923, **137**, 507-516.

Dogs were used. Histamin and tenosin increased bile secretion, while pituitrin and thyramin retarded the bile forming ability of the liver. Thyroidin had no definite effect. Atropin acted antagonistically to histamin.—F. S. H.

Le DIABETE INSIPIDE. Ambard (L.) & Lux (H.), Arch d. mal. d. reins, 1922, **1**, 78-97; abst., Ber. ü. d. ges. Physiol. (Berl.), 1923, **16**, 233.

Technical study of salt concentration in tissue fluids and blood and salt excretion.—R. G. H.

Differences in the mode of action of HYPOPHYSEAL extracts on pregnant and non-pregnant animals (Ueber eine Verschiedenheit in der Wirkungsweise von Hypophysenextrakten bei graviden und nichtgraviden Tieren). Anderes (E.) & Wächter (A.), Arch. f. Gynäk. (Berl.), 1923, **118**, 383-397.

Blood pressure experiments on rabbits are reported. In general the reaction of the pregnant animal to the injection of pituitary extract seems to be less marked and runs a shorter course than that of the non-gravid animal.—F. S. H.

Tumor of the HYPOPHYSIS (Hypophysentumor). Arlt, Klin. Wchnschr. (Berl.), 1922, **1**, 1860.

The patient showed symptoms of acromegaly. No other details are given.—J. K.

(HYPOPHYSIS) Gigantism and stature. Formes frustes of acromegalic gigantism (Gigantisme et haut taille. Cas fruste d'acromegalo-gigantisme). Benard (R.), Bull. et mém. Soc. méd. d. hôp. de Par., 1923, **47**, 534-542.

Presentation of a patient with acromegaly, unaccompanied by extraordinary height.—F. S. H.

(HYPOPHYSIS) Dwarfism (Uber Zwergwuchs). Berliner (M.), Klin. Wchnschr. (Berl.), 1923, **2**, 126-218; abst., Ber. ü. d. ges. Physiol. (Berl.), 1923, **18**, 71.

The HYPOPHYSIS and hypophyseal syndromes (L'hypophyse et les syndromes hypophysaires). Bickel (G.), Rev. méd. de la Suisse Rom. (Genève), 1923, **43**, 161-171.

A general review of classical data.—R. G. H.

DIABETES INSIPIDUS (Studi sul diabete insipido). Biffis (P.), Policlin. (Roma), 1922, **29**, 286-306; abst., Ber. ü. d. ges. Physiol. (Berl.), 1922, **15**, 70.

Report on 5 cases with metabolism studies.—R. G. H.

(HYPOPHYSIS) Acromegaly. Bonn, Deutsche med. Wchnschr. (Berl.), 1923, **49**, 533.

Case report.—J. K.

(HYPOPHYSIS) Experimental DIABETES INSIPIDUS and genital atrophy (Considérations, sur la pathogénie du diabète insipide et du syndrôme adiposo-génitale). Bremer (F.), Rev. neurol. (Par.), 1922, **19**, 644-648.

See Endocrin., **5**, 761-762.

(HYPOPHYSIS) Infundibular polyuria after denervation of the kidneys (La polyurie tuberiénne après énervation des reins). Camus (J.) & Gournay (J. J.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 694-696.

Complete denervation of the kidneys before or after a lesion of the base of the brain does not prevent the polyuria resulting from such a lesion.—T. C. B.

The functions attributed to the HYPOPHYSIS (Les fonctions attribuées à l'hypophyse). Camus (J.) & Roussy (G.), J. de Physiol. et de path. gén. (Par.), 1922, **20**, 509-518.

A review and elaboration of the work of these authors, which, now confirmed by Houssay and by Bailey and Bremer, leads to depriving the hypophysis of functions which have been attributed to it, and crediting the effects of experimental and pathological disturbance of the region to effects on the base of the brain nearby. —W. B. C.

The functions attributed to the HYPOPHYSIS (Les fonctions attribuées à l'hypophyse). Camus (J.) & Roussy (G.), J. de Physiol. et de path. gén. (Par.), 1922, **20**, 535-547.

In this article the authors have brought forward anatomical and pathological evidence further supporting their view that injury to the region of the tuber cinereum is the cause of symptoms formerly and erroneously attributed to injury of the hypophysis.—W. B. C.

HYPOPHYSEAL syndromes (Les syndromes hypophysaires. Anatomie et physiologie pathologiques. Rapport). Camus (J.) & Roussy (G.), Rev. neurol. (Par.), 1922, **29**, 622-639.

See Endocrin., **6**, 890.

The rôle of the posterior lobe in the glandular function of the HYPOPHYSIS (Sur le rôle du lobe postérieur dans la fonction glandulaire de l'hypophyse). Celestino da Costa (A.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 833-835.

Radium in tumors of the HYPOPHYSIS. Charles (J. W.), Progr. Med. (Phila.), 1921, **2**, 377.

The author quotes Quick in discussing the advantage of radium over the x-ray in the treatment of hypophyseal tumors. The nicety, as well as intimacy of application is in favor of radium. The pituitary is enclosed in a bony box and from some portals of entry interposed crests of bone add to the filtration and scattering of the x-rays; irradiation over such a wide area may permanently damage the retina. Radium, on the other hand, can be applied under proper filtration by the intranasal route directly to the hypophysis.—I. B.

PITUITARY preparations (La matière médicale des preparations hypophysaires). Choay (A.), Presse méd. (Par.), 1923, **31**, 123-124.

Details of comparative anatomy are given about the hypophysis in cattle, horses, sheep and hogs, as these animals furnish the material for pituitary preparations. Whereas the average weight of the pituitary in man is 0.35-0.45 gm. according to Testut, the weight of the glands used as materia medica is as follows: cattle, 100-300 gm., according to the size of the animal; horses, average 1.80 gm.; sheep, 0.60 gm. and hogs, 0.22 gm. The anterior and the posterior lobes in the pituitary of cattle can be readily separated and form the basis of single-lobe preparations; the separation of the two lobes in horses and sheep is complicated and requires great skill, so that these glands can be used only for the manufacture of whole-gland preparations. The relative amounts of desiccated material obtained from the pituitary of the 4 types of animals in question is as follows: of the fresh gland of cattle, 2.20 gm. yields 0.48 gm.; of horses, 1.80 gm. gives 0.36 gm.; of sheep, 0.60 gm. gives 0.13 gm. and of hogs, 0.22 gm. yields 0.05 gm.; the amounts of desiccated substance obtained from 1.80 gm. of anterior beef pituitary is 0.40 gm., and from 0.40 gm. posterior lobe about 0.08 gm.—G. L.

(HYPOPHYSIS) A case of dwarfism. Cockayne (E. A.), Brit. J. Child. Dis. (Lond.), 1922, **19**, 36.

The colloid spaces in the connective tissue of the HYPOPHYSIS in man (Les lacunes a colloïde dans le tissu conjonctif de l'hypophyse chez l'homme). Collin (R.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 92-93.—T. C. B.

Cytology of HYPOPHYSIS (Sur la fonte holocrine des cellules hypophysaires chez l'homme). Collin (R.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1206-1208.

Histological.—T. C. B.

Treatment of tumors of the HYPOPHYSIS (Zur Behandlung der Hypophysentumoren). Denker, Internat. Zentralbl. f. Ohrenh. (Leipz.), 1921, **19**, 97.

See Endocrin., **6**, 892.

The HYPOPHYSIS following brain lesions (L'ipofisi nelle lesioni del cervello). Desogus (V.), Riv. di biol. (Torino), 1922, **4**, 515-520; see also, Schweiz. Arch. f. Neurol. & Psychiat. (Zürich), 1922, **11**, 244-260.

See Endocrin., **6**, 709.

PITUITARY secretion. Dixon (E. W.), J. Physiol. (Lond.), 1923, **57**, 129-138.

Difference of opinion as to the presence of pituitrin in the cerebro-spinal fluid led to the experiments described in this paper. It is concluded that the pituitary secretes into the cerebro-spinal fluid. Pituitary extract injected into the circulation causes the gland to secrete. **Ovarian** extract specifically excites secretion. Pituitary extract increases the tone of the small intestine, but diminishes the tone of the large intestine.—T. C. B.

On the active principles of the PITUITARY gland. Dudley (H. W.), J. Pharmacol. & Exper. Therap. (Balt.), 1923, **21**, 103-122.

A crystalline picrate was obtained from the posterior lobe of the pituitary which produced effects on smooth muscle and blood pressure that were similar to the effects of the pituitary extracts and which showed an activity of the same order as that induced by histamine. The substances proved to be potassium creatinine picrate contaminated with small amounts of pituitary principles. Two principles were obtained from this: an acetone insoluble "A" an acetone soluble "B" fraction. "A" produced uterine contractions in a dilution of 1 part in 1,250,000,000 and showed an uncomplicated pressor action. "B" had one-twentieth the oxytocic activity of "A" and produced a strong depressor action followed by a moderate pressor effect. Evidence is given to show that the oxytocic and pressor principles of "A" are two separate substances and that the pressor actions of "A" and "B" are produced by different chemical entities.

—G. E. B.

(HYPOPHYSIS) Neuropsychiatric sequaelae of acute epidemic encephalitis in children. Ebaugh (F. G.), Am. J. Dis. Child. (Chicago), 1923, **25**, 88-98.

In 17 cases of post-encephalitic disturbances in children, one child showed endocrine changes. There was a general increase in

distribution of fat, especially marked in the pelvic region, showing hypopituitarism. She also showed a tendency to exophthalmus which may have indicated **thyroid** activity to compensate for the hypopituitarism. There was increased sugar tolerance, basal metabolism of plus 16 and a normal sella turcica.—M. B. G.

(HYPOPHYSIS) Retinitis pigmentosa and dystrophia adiposogenitalis. Elschnig-Biedl, München. med. Wchnschr., 1922, **69**, 1138.

A case of diffuse HYPOPHYSITIS (Ein Fall von akuter diffuser Hypophysitis). Fahr, Deutsche med. Wchnschr. (Berl.), 1923, **49**, 497.

A girl of 15 died from sepsis which originated from furunculosis. In the hypophysis a purulent inflammation was found.—J. K.

Influence of PITUITRIN on cerebrospinal fluid. Fujino (R.), Chugwai Iji-Shimpo, 1922, No. 1024 (Nov.); abst., Jap. Med. World (Tokyo), 1923, **3**, 32.

Subdural injection of 0.3-0.7 cc. of pituitrin caused a rise in cerebrospinal pressure but no other change, while in progressive paralysis, tabes dorsalis and syphilis of the central nervous system there was a decrease in the pathological contents of the cerebrospinal fluid.—R. G. B.

Action of HYPOPHYSEAL extracts on gastric contraction (Acción de los extractos de hipofisis sobre la motricidad gastrica). Galan (J. C.), Rev. Asoc. méd. argent. (Buenos Aires), 1921, **34**, 20-23 (Sec. Soc. de Biol.).

Strong doses of hypophyseal extract cause contraction. There is an increase in the strength and frequency of the contractions with weak doses. On the isolated stomach of the frog, toad, rat, cat and dog the inhibition sometimes noted is due to chloretone (in pituitrin). In the dog there is brief inhibition in the pylorus and antrum, then long lasting augmentation.—B. A. H.

A special lobe of the HYPOPHYSIS cerebri in embryo sheep and its significance (Su uno speciale lobulo dell' hypophysis cerebri in embrioni di pecora e sul suo significato). Ganfini (C.), Arch. ital. di anat. e di embriol. (Firenze), 1922, **19**, 95-121.

Largely an embryological study based on 17 sheep embryos from 12 mm. in length to embryos 5 months old. An extension of the pars intermedia into the anterior lobe is described. Of morphological interest only.—A. T. R.

The action of posterior HYPOPHYSIS extract on urinary secretion (Etude expérimentale de l'action de l'extrait d'hypophyse postérieure sur la secretion urinaire). Garnier (M.) & Schulmann (E.), Rev. neurol. (Par.), 1922, 640-643; abst.. Ber ü. d. ges. Physiol. (Berl.), 1923, **16**, 254.

Extracting the lipoids with chloroform did not diminish the antidiuretic property of hypophyseal extract.—R. G. H.

Cutaneous alterations in the toad after removal of the HYPOPHYSIS (Modificaciones cutàneas del sapo privado de hipófisis). Giusti (L.) & Houssay (B. A.), Rev. Asoc. méd. argent. (Buenos Aires), 1921, **34**, 96-100 (Sec. Soc. de Biol.).

See Endocrin., **6**, 312.

The rôle of the HYPOPHYSIS and of the brain in the production of cutaneous alterations in the toad (Influencia de las lesiones de la hipofisis y del cerebro sobre las alteraciones cutaneas de los sapos). Giusti (L.) & Houssay (B. A.), Rev. Asoc. méd. argent. (Buenos Aires), 1922, **35**, 42-47 (Sec. Soc. de Biol.).

See Endocrin., **7**, 173.

(HYPOPHYSIS) Clinical studies. Graves (M. L.), South. M. J. (Birmingham), 1923, **16**, 152-160.

History of a case of hypophyseal diosrder.—J. C. D.

(HYPOPHYSIS) Vegetative centers in the hypothalamus (Zur Anatomie, Physiologie und Pathologie der vegetativen Zentren im Zwischenhirn). Greving (R.), Ergebn. d. Anat. u. Entwcklngsgesch. (Berl.), 1923, **24**, 348-413.

An extended review of the anatomy, phyisology and pathology of the hypothalamic region of the brain, where certain vegetative centers are supposed to be located. The article is of some endocrine interest because a number of symptoms generally associated with hypophyseal disturbances may be due to involvement of neighboring brain centers. An extensive list of references is given.—A. T. R.

Defects in the membranous bones, DIABETES INSIPIDUS and exopthalmus, with report of a case. Grosh (L. C.) & Stifel (J. L.), Arch. Int. Med. (Chicago), 1923, **31**, 76-83.

A queer case, the seventh in the literature, with syndrome indicated in the title. **Dwarfism** was also a feature. The etiology of this disease is unknown. Syphilis, tuberculosis, osteitis fibrosa, Paget's disease, bone cysts, and malignant diseases could be excluded.—H. L.

DIABETES INSIPIDUS. A case report following epidemic encephalitis with enormous polyuria. Hall (G. W.), Am. J. M. Sc. (Phila.), 1923, **165**, 551-562.

An excellent review of the literature is included.—R. G. H.

(HYPOPHYSIS) Myxedematous dyspituitarism. Hastings (J. P.), Med. J. Australia (Sydney), 1922, **ii**, 526-527.

Report of a case in a 45 year old woman who became hallucinated following a **goiter** operation. Subsequently she developed **acromegalic** manifestations.—R. G. H.

(HYPOPHYSIS) Dystrophia adiposo-genitalis in a leper [Dystrophie adiposogenitale (syndrome hypophysaire adiposo-génital) chez un lépreux]. Hirschberg, Bull. Soc. path. exot. (Par.), 1923, **16**, 75-77.

First case report of a patient exhibiting the two diseases mentioned in the title. The possibility that the condition may be analagous to the endocrine disturbances of syphilitic origin is expressed. —F. S. H.

The effect of PITUITARY (anterior lobe) injection upon normal and THYROIDECTOMIZED Axolotls. Hogben (L.), Proc. Roy Soc. Lond., 1923, **94B**, 204-215.

Injection of desiccated anterior lobe extract produced metamorphosis in sexually mature Axolotl larvae with a rapidity comparable to that induced by thyroid administration, while pituitary feeding was without influence. After thyroidectomy the extract was still capable of inducing metamorphosis. Transplantation of the thyroids from a large Axolotl into a smaller subject was without effect. Spontaneous metamorphosis does not occur in Axolotls remaining in shallow water.—G. E. B.

Colour response in the HYPOPHYSECTOMIZED frog. Hogben (L. T.) & Winton (F. R.), Proc. Roy. Soc. (Lond.), 1923, **95B**, 15-31.

Extracts of the posterior lobe of the pituitary gland of mammals, birds, reptiles, amphibians and fishes have a specific local action on the melanophores of the frog, bringing on maximal expansion both in the intact animal and in isolated strips of skin. Sufficient extract may be obtained from the pituitary of a single frog to produce darkening in more than 50 other subjects. This melanophore stimulant resembles in certain biochemical properties the oxytocic principle of the pituitary. Removal of the anterior lobe in the frog does not affect its pigmentary response to natural factors while after the removal of the whole gland complete melanophore contraction is maintained even when the animal is exposed to natural factors that bring on melanophore expansion in the normal animal. Melanophore expansion is induced in hypophysectomized frogs by injection of post-pituitary extracts.—G. E. B.

PITUITARY gland dystrophies. Hollander (L.), Arch. Dermat. & Syph. (Chicago), 1923, **7**, 632-636.

A note on 2 cases of dystrophia adiposo-genitalis and 1 with ill defined symptoms and a distorted sella.—J. C. D.

Influence of the HYPOPHYSIS on growth (Influencia de la hipofisia sobre el crecimiento). Houssay (B. A.) & Hug (E.), Rev. Asoc. méd. argent. (Buenos Aires), 1921, **34**, 269 (Sec. Soc. de Biol.).

Experiments were performed on 11 lots of puppies. Extirpation of the hypophysis caused arrest of growth, dental alterations, diminution of the thyroid (very thin epithelium), atrophy of the thymus, atrophy, frequently, of the testes, adiposity, etc. Incomplete ablation impeded growth little or none. Opotherapy was inefficacious —B. A. H.

(HYPOPHYSIS, GONADS) Differential diagnosis between retarded eunuchoidism and dystrophia adiposogenitalis (Zur Differentialdiagnose des Späteunuchoidismus und Dystrophia adiposo-genitalis). Hueck (W.), München. med. Wchnschr., 1922, **69**, 1507-1508.

A man of 27 years suffered for 5 years from headache, giddiness and palpitations. As time went on he became weaker and his testicles decreased in size. The sella was large. The fat was of typically eunuchoid distribution. The nails were normal. He was quiet but without the dullness characteristic of hypothyroidism. The quantity of blood sugar was normal. He was very sensitive to pilocarpin. The author believes that the patient had Frölich's disease, caused by a hypophyseal tumor, although symptoms of increased brain pressure were absent. This, however, is not rare in pituitary tumors.—J. K.

(HYPOPHYSIS) Diagnosis and treatment of nocturnal and diurnal enuresis. Jacobs (F. B.), Penn. M. J. (Harrisburg), 1922, **25**, 867-869.

Eleven girls and 29 boys suffering from enuresis were given 0.5 to 1 cc. of posterior lobe pituitary extract (obstetrical variety) subcutaneously, once weekly for 3 to 5 doses. Of the 49 subjects treated, 17 were greatly improved, 16 were cured, and 16 unimproved. A period of 3 months has elapsed in most of the cases reported as cured. In the cases reported as greatly improved, the enuresis has been cut from a nightly occurrence mostly, to once a week, and in many cases, to once or twice in 12 weeks.—H. L.

A rare case of syphilis of the central nervous system combined with an HYPOPHYSEAL lesion (Ueber einen seltenen Fall von Lues des Zentralnervensystems, kombiniert mit einer Erkrankung der Hypophyse). v. Josephy (H.), Ztschr. f. d. ges. Neurol. u. Psychiat. (Berl. u. Leipz.), 1920, **58**, 56-78.

A 53 year old woman had a still-born child. The clinical findings were: optic atrophy, pupillary disturbance, convulsive seizures, attacks of unconsciousness, speech disturbance, spastic and flabby paresis, mental lapse, restlessness, disorientation and confabulation. The Wassermann test of the blood was negative, of the spinal fluid, incompletely positive. The disorder was slowly progressive in course and without fluctuations. It was first diagnosed as tabes, then paralysis and finally as a syphilitic lesion of the brain, the latter

based on further observation of a pseudobulbar paralytic picture. Besides several large gummata in the right temporal lobe, there were diffused small granuloma in the cerebellum pons, oblongata and spinal cord; also miliary gummata or accumulations of eiptheli-oid cells, with lymphocytic foci and surrounding perivascular infil-trations were found. There was a general syphilitic leptomeningitis with a tendency toward nodule formation. Small gummata on the inner side of the spinal dura were observed, but no diffused brain lesions, especially none that would have caused paralysis, were seen. Spirochetes could not be detected. Disseminated miliary gummata of the central nervous system have, up to this time, been described only as attendant phenomena of paralysis (Sträussler, Jacob and others). Besides these disorders there were extensive and peculiar changes in the enlarged hypophysis; this had produced no clinical symptoms, and probably exhibited a peculiar histological form of syphilis. An identical condition was found by Simmonds in 4 cases, but these were not diagnosed as syphilitic.—R. G. H.

(HYPOPHYSIS) Pathology of salt metabolism (Zur Pathologie des Salzstoffwechsels). Jungmann (P.), Klin. Wchnschr. (Berl.), 1923, **2**, 18-19.

Report of a case. A man of 44 complained of gradual loss of appetite, dullness, headache and the symptoms of **diabetes insipidus.** NaCl excretion was apparently normal; water excretion was nearly normal. This would, according to the author, exclude the diagnosis of diabetes insipidus. Analysis of the blood showed that the NaCl metabolism was normal only in appearance; even when the diet was low in NaCl there existed hyperchloremia, and the freezing point was 0.62, a proof of hyperosmosis of the serum. The skiagram showed a large sella with bone structure such as is caused by low calcium. Autopsy showed an abscess in the hypophysis. The bones of the sella were almost as thin as a sheet of paper. Microscopically, the hypophysis showed only a small quantity of normal glandular tissue at the periphery; the rest consisted partly of inflamed tissue, partly of a cavity caused by the formation of the abscess. The medulla of the **adrenals** was normal, but there was only a small quantity of cortex. After a discussion of the different theories concerning the pathogenesis of diabetes insipidus, the author states that the hypophyseal origin of diabetes insipidus has not been proved, that the centers regulating water and salt metabolism may undergo pathological changes, thus producing the disease. As there is more than one center the different forms of diabetes insipidus (with hyperchloremia, hypochloremia, etc.), the author suggests, might be attributed to different anatomical lesions.—J. K.

The effect of PITUITRIN upon the blood pressure and diuresis. Kasa, (T.), Tohoku Igakukai Zasshi (Sendai), 1922, **6**, 41-71.

In order to examine the effect of pituitrin on sympatheticotonic and vagotonic men, **adrenalin,** pilocarpin, and pituitrin were injected subcutaneously, and changes in the blood pressure, the amount of nitrogen and salts in urine and its total quantity were determined. In men sensitive to adrenalin, the injection of pituitrin never increases the blood pressure, but excites the urine discharge. In men insensitive to adrenalin, the results are diametrically opposite. An administration of 500 to 700 cc. of warm water before injection prevents the diuretic action of pituitrin, and diminishes the concentration of nitrogen and salts in the urine. From these results the author concludes that the pituitary body contains only one substance but that this may act on the blood pressure in different ways according to the different conditions of the nervous system. If the subject is put into a condition of polyuria, the injection of pituitrin prevents diuresis for 3 to 4 hours, as is seen in **diabetes insipidus.** The pituitary body seems, therefore, to be an organ which controls the water content of the body.—S. K.

HYPOPHYSEAL disease probably of syphilitic origin. Key (B. W.), Am. J. Ophth. (Chicago), 1922, **5,** 956-961; cit., J. Am. M. Ass. (Chicago), 1923, **80,** 59.

PITUITRIN diuresis in diseases of the kidney (Uber den Ablauf der Pituitrin diurese bei Nierenkranken). Klein (O.), Wien. Arch. f. inn. Med., 1923, **5,** 429-450.

When pituitrin is injected into patients with diseases of the kidney the type of diuresis depends largely upon the anatomical lesion of the kidney, especially upon the quantity of normally functioning kidney tissue still in the body and the likelihood of the patient's getting edema. Insufficiency of the kidneys causes retardation of the pituitrin reaction, but specific gravity, the water content of the blood, etc., undergo the same changes in patients with abnormal kidney function as in normal persons, although the reaction is slower after the injection of extract of the posterior lobe of the hypophysis. In patients who are very apt to get edema, hydremia, a normal reaction after pituitrin administration, may not occur, and secondary diuresis of water may not be seen. However, the injection of pituitrin in a patient with a renal disorder may be an excellent clinical method of estimating the degree of the renal and extrarenal disturbances existing at a certain moment.—J. K.

HYPOPHYSIS and adiposity (Hypophyse und Fettsucht). Knipping (H. W.), Deutsche med. Wchnschr. (Berl.), 1923, **49,** 12-13.

The author studied 15 cases of adiposity and experimented on dogs in which the anterior lobe of the hypophysis was destroyed. The results indicate that the hypophysis has a most important part in the regulation of metabolism. The normal gland regulates oxydation after ingestion of food. This function is lost when large parts

of the organ lose their normal function and adiposity occurs. In many patients the sexual functions are markedly diminished also. Oral administration of hypophysis may prove of much value.—J. K.

Comparative anatomy of the HYPOPHYSEAL membranes (Zur Vergleichenden Anatomie der Hypophysenumgebung). Koller (R.), Ztschr. f. Anat. u. Entwcklngsgesch. (Berl.), 1922, **65**, 183-203.

(HYPOPHYSIS) Case of Dercum's disease (Un cas de maladie de Dercum). Laignel-Lavastine & Largeau (R.), Bull. et mém Soc. méd. d. hôp. de Par., 1923, **47**, 665-667.

Case report. The basal metabolism was normal.—F. S. H.

(HYPOPHYSIS) Gigantism or precocious macrosomia (Gigantisme on macrosomie précoce. Soudure prematurée des cartilages de conjugasion). Léri (A.) & Leconte, Bull. et mém. Soc. méd. d. hôp. de Par., 1923, **47**, 327-331.

Presentation of the case of a child of 6 years. The body size was normal for that of 12 or 13 year old boy and the ossification and epiphyseal state was consonant with the size and not the age. —F. S. H.

Three cases of HYPOPHYSEAL cachexia (Drei Fälle von Simmondsscher Krankheit). Lichtwitz (L.), Klin. Wchnschr. (Berl.), 1922, **1**, 1877-1879.

The case is reported of a man of 21. Two years before the report his disease began with extreme thirst and polyuria. The diagnosis, diabetes insipidus was made. The patient became feeble and dull. The beard did not grow; libido disappeared; the sex organs atrophied; there was loss of hair in pubes and axillae and the patient showed a marked growth in height. The blood pressure was 100 mm. Hg. Wassermann examination was negative. Skiagram of the skull showed a slightly enlarged sella with 3 suspected spots, resembling material rich in calcium. Injections of pituglandol, combined with x-ray treatment of the sella produced no outward improvement, although the patient said he felt better. A woman of 31 who had formerly undergone treatment for syphilis and diabetes insipidus was observed. Menstruation had stopped 8 years before; she lost all body hair and sexual desires were no longer manifest. There was atrophy of the sex organs. The sella did not seem enlarged, but the radiogram showed an abnormal spot in the posterior part of the sella which probably contained a large amount of calcium. A woman of 41 had been treated for syphilis. The thyroid was hard; the hair was almost entirely gone and the sex organs had atrophied. A very large sella was seen with crooked pro- and post-clinoids and the same sort of abnormal spots as were

described in the preceding cases. The first case, especially, is interesting, as hypophyseal cachexia in men is rare.—J. K.

DYSPITUITARISM and epilepsy. A report of six cases. Lisser (H.) & Nixon (C. E.), Med. Clin. N. Am. (Phila.), 1923, **6**, 1471-1490.

An interesting and valuable discussion of "idiopathic" epilepsy associated with evident endocrine, especially pituitary, dysfunction. In one of the cases reported the facies and x-ray examination indicated acromegalic changes in addition to changes in the visual fields. The sella in the other 5 subjects was probably within normal limits. Except in the acromegalic, obesity was quite marked in all; this was of the girdle type, pathognomonic of hypopituitarism. Five of the 6 patients reported had reached or passed puberty, and all presented menstrual disturbances especially characterized by a scanty flow and an abnormally prolonged interval. All 6 subjects presented hair changes suggestive of hypothyroidism, and the velvety, smooth, cold, waxy skin indicating deficient pituitary function. In one subject changes in hair distribution of heterosexual type were present. The basal metabolism in the acromegalic patient was +15%, in another with evident hypothyroidism it was —21%, in the remaining 4 subjects the metabolic rate was normal. Mental retardation, especially impaired memory, was fairly marked in all except one subject; emotional disturbances commonly seen in endocrine dysfunction were noted in all six. Organotherapy was administered to all 6 patients with strikingly beneficial results in the menstrual disturbances, obesity and mental and emotional status. In the 5 patients under treatment for a long enough period of time epileptic seizures either ceased entirely or became far less frequent and much milder. Two of these 5 patients received no sedatives. The authors emphasize the importance of early apprehension and treatment of endocrine abnormalities. Treatment should be continued over many months or even years. Patience is a vital requirement in all gland therapy, and no results can be expected from haphazard, briefly applied treatment.—I. B.

The use of HYPOPHYSIS extracts and sublimate by mid-wives (De l'emploi par les sages-femmes des extraits hypophysaires et du sublimé). Le Lorier, Bull. Soc. d'obst. et de gynéc. (Par.), 1923, **12**, 12.

Prohibition of the use of hypophyseal extracts by mid-wives is advocated.—F. S. H.

General infantilism of endocrine origin, probably hypofunction of the HYPOPHYSIS (Universeller Infantilismus aus innersekretorischer Ursache wahrscheinlich Hypofunktion der Hypophysis). Löwe, Deutsche med. Wchnschr. (Berl.), 1923, **49**, 102.

No details are given.—J. K.

(HYPOPHYSIS) Dwarfism (Ein Fall echter Nanosomie). Mau, Klin. Wchnschr. (Berl.), 1922, **1**, 1972; see also, München. med. Wchnschr., 1922, **69**, 1133.

The case is reported of a boy of 12 years, 100 cm. in height who was well proportioned and of excellent intelligence; skiagram showed a defect in the sacrum; anisocoria, pes equinus and atrophy of the right testicle were also observed. Thyroid function appeared normal.—J. K.

(HYPOPHYSIS) Syndrome adiposo-génital avec selle turcique normale. Mouriquand, Ravault (P.) & Chassard, Soc. méd. d. hop. de Lyon, 1923 (January 9); abst., Presse méd. (Par.), 1923, **31**, 76.

Pathological findings of Dr. Sagaro's case of DIABETES INSIPIDUS. Nakamuro (H.), Juzenkwai Zasshi, 1922, **27**, No. 4 (April); abst., Jap. Med. World (Tokyo), 1922, **2**, 266.

The author observed hemorrhage and an inflammatory condition about the base of the cerebrum and believed this to be the cause of the diabetes.—R. G. B.

(HYPOPHYSIS) The biological assay of PITUITARY extract. Nelson (E. E.), J. Lab. & Clin. M. (St. Louis), 1923, **8**, 318-333.

A valuable contribution to the subject of the standardization of endocrine products which does not lend itself to abstracting and should be read in its entirety to be appreciated. The author concludes by stating that a definite recommendation will be made very shortly as to the details of preparation of a standard from the pituitary gland itself, together with the details of the exact method to be followed in the biological assay of pituitary extract.—I. B.

Hemophilia and PITUITARY extract. Neumann (H.), Med. Klin. (Berl.), 1923, **19**, 115.

Neumann reports a case of probable hemophilia. The bleeding from the nose stopped after one local and one subcutaneous application of pituitary extract.—J. Am. M. Ass., **80**, 1277.

The HYPOPHYSIS in Raynaud's disease (La maladie de Raynaud et l'hypophyse). Nicolis (N.), Radiol. méd., **9**, 118; J. de radiol. et d'électrol. (Par.), 1922, **6**, 433.

The author has radiographed the hands, lower extremities of the forearm, the cervical vertebra, and the hand of a patient suffering from local asphyxia of the extremities. He found no lesion of the bones of the hand, no apparent calcification of the radial or ulnar arteries, and no cervical ribs, but in focusing the rays on the sella turcica he was surprised to find the "pineal" gland calcified and the sella turcica enlarged.—Med. Sc., **8**, 83.

(HYPOPHYSIS) Unknown formation of cataract in a boy of 10 with DIABETES (Bisher nicht bekannte Kataraktbildung bei einem 10 jahrigen Diabetiker). Pick, Deutsche med. Wchnschr. (Berl.), 1922, **48**, 1692.

The case is reported of a boy with diabetes who had opaque spots in the shape of points in the lenses. The vision improved markedly upon administration of hypophysis tablets.—J. K.

A case of infantilism, hypofunction of the HYPOPHYSIS and congenital mitral stenosis (Sopra un caso di infantilismo da ipofunzione ipofisaria e da stenosi mitralica congenita). Poggio (G.), Gior. di clin. med. (Parma), 1923, **4**, 2-13.

A critical analysis of an interesting case of infantilism due to primary hypophyseal lesion, accompanied by a secondary pluriglandular syndrome (**thyroid, testicle, adrenals**) and by partial visceral hypoevolution (mitral stenosis).—P. N.

Dystopia of the NEUROHYPOPHYSIS (Ein weiterer Beitrag zur Kenntnis der Dystopie der Neurohypophyse). Priesel (A.), Beitr. z. path. Anat. u. z. allg. Path. (Jena), 1922, **70**, 209.

Reference has already been made to a case of dwarfism investigated by the author which was due to dystopia of the posterior lobe of the **pituitary** body. He has now observed two further cases of a similar dystopia in otherwise normally built subjects. The cases are, however, important as no similar ones appear to have been so far described.—Med. Sc., **8**, 61.

Pathology of the HYPOPHYSIS (Zur Pathologie der Hypophyse). Reinhardt, Klin. Wchnschr. (Berl.), 1922, **1**, 2309.

A short note on hypophyseal cachexia and its importance in pathology. No new data.—J. K.

DIABETES INSIPIDUS or HYPOPHYSEAL polyuria. Riely (L.), J. Oklahoma M. Ass. (Muskogee), 1921, **14**, 276-277.

A case record of a man of 34 with polyuria presumably of hypophyseal origin.—W. J. A.

Tethelin: A growth-controlling substance obtainable from the anterior lobe of the PITUITARY body. Robertson (T. B.), Biochem. J. (Lond.), 1923, **17**, 76-82.

A polemical reply to the criticism and experiments of Drummond and Cannan (Biochem. J., 1922, **16**, 53). Robertson upholds his earlier experimental work in this paper to the satisfaction of thoughtful investigators.—F. S. H.

Tumor of the HYPOPHYSIS (Syndrome tubéro-hypophysaire avec cécité, infantilisme, état adiposogénital, oligurie; tumeur visible à la radiographie). Roger (H.), Pourtal (L.) & Sedan, Comité

méd. d. Bouches-du-Rhone, 1923, Jan. 5; abst., Presse méd. (Par.), 1923, **31**, 137.

The authors report the case of a 14 year old boy having the height and genital organs of a child of 8 or 9 years and a fat distribution of feminine type. This patient, who was completely blind, had a keen intelligence. Usually not more than ½ liter of urine passed in 24 hours. Radiography, besides destruction of the posterior clinoidal processes, showed in the suprasellar region a rounded opaque shadow, which could be interpreted only as the image of a tumor.—R. G. H.

(HYPOPHYSIS) The size of the sella turcica in relation to body measurements. Royster (L. T.) & Rodman (N. F.), Tr. Am. Pediat. Soc., 1922, **34**, 246-266.

The study is based upon the comparative measurements of 400 children. Fat pads in the upper pelvic girdle and over the sacral triangle are normal in infants and young children and are present to a greater or less degree throughout childhood but begin to disappear about the seventh year. From infancy to the fifteenth year the average measurements of the sella turcica show a gradual increase in size amounting to approximately 50 per cent. The interclinoid space, however, does not increase in proportion to the other measurements of the sella but remains practically constant. There is apparently no definite relation between the size of the sella turcica and the interclinoid space as measured on the flat plate and the deposits of fat in the upper pelvic girdle or sacral triangle nor of the relation of the height to half height or height to span. The relation of span to height remains practically constant throughout childhood. The size of the sella as measured on the flat plate is probably an inaccurate guide to the function of the pituitary.—M. B. G.

DIABETES INSIPIDUS. Sagara (S.), Juzenkwai Zasshi, 1922, **27**, No. 4 (April); abst., Jap. Med. World (Tokyo), 1922, **2**, 266.

A report of a case in which psychic disturbances were marked. —R. G. H.

Epithelioma of the anterior lobe of the HYPOPHYSIS with cerebral symptomatology, without hypophyseal reactions (Epithélioma du lobe antérieur de l'hypophyse à symptomatologie cérébrale sans réactions hypophysaires). Sainton (P.) & Péron (N.), Soc. de neurol. (Par.), 1923, March 22; abst., Presse méd. (Par.), 1923, **31**, 338.

The comparative efficacy of various kinds of PITUITARY preparations. Saito (O.), Okayama Igakkwai Zasshi, 1922, No. 391 (August); abst., Jap. Med. World, **2**, 350.

The author carried out physiological tests with various kinds of pituitary preparations and found that each had a different degree

of potency with various test organs; the differences were marked; some were but 1/10 to 1/3000 as effective as others.—R. G. H.

Experiments on feeding HYPOPHYSIS extract. Sakamoto (S.) & Sato (G.), Nihon Naikagakukai Zasshi (Tokyo), 1922, **10**, 757-765.

Very young rabbits were fed with 0.1625 gr. of pituitary extract (Parke Davis) per day or injected subcutaneously with 0.0025 gr. per day. After about 60 days they were killed and the endocrine organs examined histologically. The authors found a relative increase in basophilic cells and a relative decrease in eosinophilic cells in the anterior lobe of the pituitary. Presuming that the basophilic cells are an active form of leucocyte, their increase may indicate that the function of the anterior lobe of the pituitary is excited by the administration of pituitary extract.—S. K.

Dangers of administration of HYPOPHYSEAL preparations (Uber Gefahren bei der Anwendung der Hypophysenpräparate). Samuel (M.), Klin. Wchnschr. (Berl.), 1922, **1**, 1839.

During labor extracts of hypophysis may be useful in certain cases. Extreme care is necessary when the contractions of the uterus are tetanic; otherwise the life of the child may be lost. In atonic postpartum bleeding ergot preparations have a more marked and a better effect than preparations of hypophysis. Three cases are reported in which death of the child could probably be attributed to the use of pituglandol.—J. K.

Rupture of uterus following one injection of HYPOPHYSEAL extract Rupture de l'utérus consécutive à une injection d'extrait hypophysaire). Séjournet et Braine, Rev. franç. d. gynéc. et d'obst. (Par.), 1922, **17**, 478-479 (Sept.).

The rupture occurred in a multipara of 31, the extract being given after 11 hours of labor because of lessening of pains. The cervix was dilated "to the size of the palm of the hand." The patient recovered after hysterectomy.—E. N.

A case of HYPOPHYSEAL cachexia (Ein Fall von Kachexia Hypophysiopriva). Simons, Klin. Wchnschr. (Berl.), 1922, **1**, 2017; see also, Deutsche med. Wchnschr. (Berl.), 1922, **48**, 1397.

Studies on the bio-assay of PITUITARY extracts. Smith (M. I.) & McClosky (W. T.), Pub. Health Rep. (Wash.), 1923, **38**, 493-512.

The unsatisfactory status of the artificial standards that had been proposed for the physiological assay of pituitary extracts is discussed. A method is described for the preparation of an infundibular powder of uniform potency, representing the whole oxytocic and pressor activity of the infundibular lobe of the pituitary gland. The powder has not shown any deterioration with the period of observation of nearly 8 months. The active principle (or principles)

is readily extracted quantitatively from the powder by simple manipulation. The results of the physiological assay of 9 commercial extracts by the isolated uterus method, using the above powder as a standard, are given. It is shown that there is great variation in the activity of commercial extracts, the strongest having been found 8 times as strong as the weakest. It is proposed that an infundibular powder such as is described herein be used as a standard for the assay of commercial extracts by the isolated uterus method, and the recommendation is made that manufacturers be required to make and standardize their extracts to represent the activity of 4 mgs. of fresh gland substance per cubic centimeter of extract. It is further suggested that the recommended strength of the commercial extract remain in force until properly conducted clinical observations with carefully standardized extracts make a change desirable. The following conclusions may be drawn from the experiments described herein. (1) Infundibular lobes of the pituitary gland from cattle do not show seasonal variations in oxytocic activity. (2) There is no appreciable difference in oxytocic activity of infundibular lobes from steers and from cows. (3) Freezing freshly removed pituitary glands for several hours does not affect their oxytocic activity. (4) The oxytocic activity of properly acidulated extracts is not affected by fractional sterilization in steam at 100° C. Autoclaving at 15 pounds pressure, even for brief periods, causes deterioration in activity.—Quoted from Original.

(HYPOPHYSIS) Case of acromegaly in a girl aged 16, with congenital heart disease (aortic stenosis). Stolkind (E.), Proc. Roy. Soc. Med. (Lond.), 1923, **16**, 22-23 (Clin. Sec.).

The patient at the age of 9 began to grow rapidly. She is now 5 feet, 5.9 inches tall and weighs 9 st., 7½ pounds. There is some polyphagia, but no polydipsia or polyuria. There is weakness, early fatigue, trembling, and restless sleep. The memory is poor, mentality slow, and there is lack of interest. Radioscopy revealed signs of acromegalic gigantism which has not yet reached the stage of sellar malformation.—I. B.

The influence of PITUITRIN on blood pressure and diuresis. Suh (B.), Tohoku Igakkwai Zasshi, 1922, **6**, Nos. 3 & 4 (Oct.); abst., Jap. Med. World (Tokyo), 1923, **3**, 33.

Administration of pituitrin to subjects hypersensitive to **adrenalin** normally causes no rise of blood pressure; on the other hand, it causes diuresis. If adrenalin glycosuria does not develop, pituitrin causes augmentation of the blood pressure but no diuresis. If 500-700 cc. of warm water is given by mouth within a short period of time, pituitrin acts as an antidiuretic and the salt contents and nitrogen percentage of the urine is increased.—R. G. H.

(HYPOPHYSIS) A case of gigantism with hare lip (Sur un case de gigantisme avec gueule de loup). Tanasescu (I.) & Parhon (C. I.), Bull. et mém. Soc. neurol., psychiat. et psychol. de Jassy, 1922, **3**, 62-65.

The authors report this as the first case of simultaneous occurrence of gigantism and cleft lip and palate in the literature.

—R. G. H.

PITUITRIN in the second stage of labor. Tate (M. A.), Am. J. Obst. & Gynec. (St. Louis), 1923, **5**, 252-254 (March).

Action of the PITUITRIN upon the pulse rate, blood pressure, urine, and blood cells of the human body. Tode (G.), Okayama Igakwai Zasshi, 1922, No. 393, 573-606; No. 394, 678-706.

Pituitrin or pituglandol were subcutaneously injected into patients with various kinds of diseases of the circulatory organs or of the autonomic nervous system. Pituitrin generally lowered the pulse rate, but a reverse effect was also found in patients with heart diseases or in very nervous subjects. Both the systolic and diastolic pressures were raised by pituitrin and the pulse pressure diminished. In some cases, the systolic pressure fell while the diastolic was raised. In the patients who tended to react to pituitrin with remarkable decrease of pulse rate, adrenalin caused extreme tachycardia. As regards the effect on the blood pressure, the subjects sensitive to pituitrin were not sensitive to adrenalin, and vice versa. Such a relationship was not to be found between pituitrin and atropin or pilocarpin. The pituitrin injection is therefore not of much value to test of the function of the autonomic nervous system. The pituitrin injection provoked albuminuria and glycosuria. Blood-counts showed an increase of polymorphs and a decrease of lymphocytes. In half of the patients the results were opposite within an hour after injection. In any case the eosinophile cells were diminished.—S. K.

HYPOPHYSEAL medication in obstetrics (La médication hypophysaire en obstétrique). Vermelin (H.), Rev. méd. de l' est (Nancy), 1921, **49**, 560-567.

A good review. No new data.—F. S. H.

DIABETES INSIPIDUS and ACROMEGALY (Diabetes insipidus bei Akromegalie). Weisz (R. F.), Deutsche med. Wchnschr. (Berl.), 1923, **49**, 580-581.

A woman of 49 suffered for 2 years from headache and enlarged hands and feet. She now shows all the symptoms of acromegaly. The skiagram showed a probable tumor of the hypophysis. The thyroid was enlarged. X-ray treatment had no influence except that the headache temporarily disappeared, to return some weeks later, however, with all symptoms of diabetes insipidus. After a review of the theories explaining the possibility of a simultaneous occurrence

of these two clinical pictures, the author sets forth as a probable theory that acromegaly is caused by a tumor and that the symptoms of diabetes insipidus occur when the tumor presses upon the center in the midbrain regulating water metabolism.—J. K.

The importance of radiography in doubtful cases of optic atrophy with special reference to PITUITARY body. Wright (R. E.) & Barnard (T. W.), Brit. J. Ophth. (Lond.), 1923, **7**, 123; abst., Arch. de med., cirug. y espec. (Madrid), 1923, **11**, 43.

(HYPOPHYSIS) A case of adiposogenital syndrome. Yamamoto (S.), Chuwo Ganka Iho, 1922, **15**, No. 8 (August); cit., Jap. Med. World (Tokyo), 1922, **2**, 355.

(HYPOPHYSIS) A family of dwarfs (Eine Zwergenfamilie). Zondek, Deutsche med. Wchnschr. (Berl.), 1923, **49**, 69.

The wife has a typical case of chondrodystrophia; her 2 children were born by cesarian section. The husband suffers from osteopsathyrosis, a disease inherited from his mother. A son of 6 suffering from the same disease has had 7 fractures. This case is remarkable, being the first in the literature of osteopsathyrosis in 3 generations. The boy has had no more fractures since the onset of treatment with calcium and phosphorus.—J. K.

The effect of INSULIN on the blood sugar following total and partial removal of the LIVER. Mann (F. C.) & Magath (T. B.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 515.

The authors outline their experiments on dogs. They conclude that the symptoms associated with hypoglycemia, whether produced by insulin or extirpation of the liver, are similar. Removal of the entire liver does not influence the action of large doses of insulin; and 60% to 80% of the liver can be taken out without modifying the hypoglycemia produced by small doses. The presence of the liver is essential, however, for the permanent restoration of the blood sugar level.—J. C. D.

PANCREATIC function during nursing. (La funzione pancreatica durante l'allattamento). Almagia (M.), Arch. di farmacol. sper. (Roma), 1923, **35**, 1-4.

Pancreas extirpation in sucking puppies shows that the internal secretion of the pancreas in this period has more effect on fat than on sugar metabolism.—P. N.

Correlation of PARATHYROID function and intestinal secretion (Sulle correlazioni tra funzione paratiroidea e secrezione enterica). Artom (C.), Arch. di Fisiol. (Florence), 1922, **20**, 369-404.

A series of experiments on 5 dogs. Complete extirpation of the thyroid-parathyroid apparatus was followed by progressive and profound diminution of the quantity of the succus entericus, its invertase, and to a lesser extent, its ereptic activity. This was due

to parathyroid insufficiency, since removal of **thyroid** only, with minimal damage to the parathyroids, leads to but marked fluctuation of activity of the juice, an initial depression being followed by rapid return to normal (compensatory hyperactivity of the intact parathyroid tissue). Partial extirpation of the parathyroids, with partial or total extirpation of thyroid, gives results similar to those following total extirpation, the effects being dependent upon the extent of damage to the parathyroids. If this is not too great, there is a gradual return towards normal. Administration of soluble calcium salts appears to have a favorable action on the intestinal secretion as well as on the tetany sequence. The results may be traceable to alteration of the secretory nerves as part of the disturbance in tone and excitability of the autonomic and sympathetic system following damage to the parathyroids.—A. T. C.

(PARATHYROID) The calcium in the blood in health and TETANY (Untersuchungen über den Blutkalk bei Gesunden und Spasmophilen). Blühdorn, Klin. Wchnschr. (Berl.), 1922, **1**, 2258.

By means of chemical and biological methods the author found that the administration of $CaCl_2$ or organic calcium salts increased the calcium of the blood which in tetany is always low.—J. K.

(PARATHYROIDS) Studies in experimental tetany. I. On the distribution of calcium in the plasma and cells. II. On the variations in colloidal and ionic calcium. Cruickshank (E. W. H.), Biochem. J. (Lond.), 1923, **17**, 13-29.

Studies of the calcium distribution in the cells and plasma and the relations of diffusible and non-diffusible calcium of the blood of parathyroidectomized dogs. It was found that 100 cc. of normal blood contains the following average amounts of calcium (in mg.): plasma, 8.11; cells, 1.01; total, 9.12. In tetany the figures drop to: plasma, 5.26; cells, 0.46; total, 5.7. Diffusible calcium in normal serum averages from 60% to 70%, while in severe parathyroid tetany it amounts to 94% of the total calcium. Further studies on the pH showed that while there is no immediate state of alkalosis following parathyroidectomy, this condition is not necessarily marked, and with the development of tetany (severe) it runs rapidly into a condition of acidosis. The immediate relief of the condition consequent upon the withdrawal of 70-100 cc. of blood is indicative of a toxic causative factor. The calcium deficiency and the great loss of colloidal calcium is interpreted as signifying a rapid protein disintegration.—F. S. H.

PARATHYROID hyperplasia and bone destruction in generalized carcinomatosis. Klamperer (P.), Surg., Gynec. & Obst. (Chicago), 1923, **35**, 11; abst., Med. Sc. (Lond.), 1923, **8**, 211.

(PARATHYROID) Water and salt metabolism in TETANY (Zur Frage des Wasser und Mineralstoffwechsels bei Tetanie). Elias

(H.), Kornfeld (F.), & Weissbarth (E.), Klin. Wchnschr. (Berl.), 1922, **1**, 2238.

When patients with tetany ingest HCl, less acid is excreted than in normal persons; on the contrary, more acid is excreted after the ingestion of NaCl. Many subjects retain acid as well as ammonia; in these patients the excretion of water, chlorine and phosphorus is also retarded.—J. K.

(PARATHYROID) Postoperative tetany with epilepsy, and its treatment (Postoperative Tetanie mit epileptischem Anfall, zugleich zur Frage der Therapie). Graef (W.), München. med. Wchnschr., 1922, **69**, 1119-1120.

A woman of 24, suffering from oppressed respiration caused by a goiter, was operated upon. Three days after the operation the first tetanic contraction was seen. Then permanent tetany developed, ending after a month with an epileptic fit. Administration of parathyroid extract seemed to have little or no influence. The best results were obtained with calcium preparations and narcotics.—J. K.

(PARATHYROIDS) Inorganic ion ratio after administration of oxalates and citrates. Gross (E. G.), J. Biol. Chem. (Balt.), 1923, **55**, 729-738.

Determination of the chlorine, phosphorus, calcium, potassium, sodium and magnesium ion concentration of the blood of dogs to which sodium oxalate or sodium citrate had been administered and a comparison of the results with the findings in parathyroid tetany. The subcutaneous injection of sodium oxalate produces tetany with a marked disturbance in the blood salts. The sodium, chlorine and calcium are decreased, while total phosphorus and potassium are increased, magnesium remains singularly constant. Sodium citrate produced none of these changes.—F. S. H.

(PARATHYROIDS) Discussion on "the present position of organotherapy." Grove (W. R.), Proc. Roy. Soc. Med. (Lond.), 1923, **16**, 18-22. (Sec. Therap. & Pharmacol.)

The author's deductions are based on his previous observations to the effect that calcium salts, administered either by mouth or intramuscularly, stimulate the reparative processes. It was found that chronic varicose ulcers of the leg are associated with marked reduction of the patient's blood calcium, and that raising the calcium content leads to marked improvement of the ulcers. Subsequently it was discovered that parathyroid in doses of 1/10 gr. by mouth rendered the calcium blood content normal with resulting cure of the ulcers. Ulcers which resisted this mode of treatment were found to be associated with infectious foci in teeth and elsewhere, the removal of which resulted in startling improvement and prompt cure through parathyroid treatment. In the absence of in-

fectious foci, even gastric and duodenal ulcers, acute phlebitis, bed sores, the various forms of arthritis, severe burns, sciatica, and even such conditions as pericarditis, nasal infections, gumma of the face, herpes zoster of the conjunctiva with iritis, pernicious anemia, and hypertrophy of the prostate, all of which were associated with demonstrable calcium deficiency, were markedly benefited by parathyroid administration. Calcium deficiency appears to be an index of the absorption of a toxin, and many chronic diseases are due to the breakdown of the defenses of the body in controlling this mechanism, which is apparently situated in the parathyroid glands. The author affirms that parathyroid is not a cure; it is merely a physiological aid to the healing of chronic lesions due to toxic absorption; if the focus of this toxin be removed, parathyroid extract will then bring about a cure. If the focus cannot be removed it is a valuable remedial agent, though not a cure.—I. B.

Elementary chemical study of PARATHYROID glands of cattle. Hanson (A. M.), Mil. Surgeon (Wash., D. C.), 1923, **52**, 280-285; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1341.

Lattice fibers in the PARATHYROID (Über "Gitterfasern" im Epithelkörperchen und deren Genese). Koritschoner (R.), Ztschr. f. Anat. u. Entwcklngsgesch. (Berl)., 1922, **66**, 404-423.

Of morphological interest only.—A. T. R.

Treatment of postoperative tetany by grafting of PARATHYROIDS of horses (Behandelung der postoperativen Tetanie durch Ueberpflanzung von Pferdeepithelkörperchen). Krecke, München. med. Wchnschr., 1922, **69**, 1129.

PARATHYROID and paralysis agitans. Kühl, Deutsche med. Wchnschr. (Berl.), 1923, **49**, 497.

A case is reported in which a patient with Parkinson's disease was apparently cured by implantation of a parathyroid.—J. K.

The function of the PARATHYROID. Salvesen (H. A.), J. Biol. Chem. (Balt.), 1923, **56**, 443-456.

From a series of partially and completely parathyroidectomized dogs on which determination of the calcium, phosphorus, blood sugar, and alkali reserve of the blood were made and a study of the calcium excretion in urine and feces, Salvesen comes to the conclusion that the symptoms of parathyroid insufficiency are due to calcium deficiency. The belief is expressed that the parathyroids control the calcium level of the blood and by so doing they influence the function not only of the muscle and the nerve tissue, but probably of all the organs. The tetany which occurs in dogs, when they are transferred from a milk diet to a meat diet, is not due to the meat, as such, but to the lack of calcium in the diet which was formerly supplied by the milk.—F. S. H.

(PARATHYROID) Ostitis fibrosa. Sauer, Klin. Wchnschr. (Berl.), 1922, **1**, 2357.

Giant cell sarcoma (Virchow), bone cysts and epulis are all special forms of ostitis fibrosa. Pathogenesis is unknown but more and more cases are published in which changes in one of the parathyroids, especially adenomas, are found, leading some investigators to believe that the disease is caused by increased calcium metabolism. These investigators recommend the ablation of the pathological parathyroid.—J. K.

(PARATHYROIDS) Tetany in the adult with special reference to alkalosis and calcium metabolism. Tileston (W.) & Underhill (F. P.), Tr. Ass. Am. Physicians (Phila.), 1922, **37**, 87-99.

The action of the blood serum of animals in TETANIA PARATHYREOPRIVA on motor nerve and muscle. Yoshimoto (M.), Quart. J. Exper. Physiol. (Lond.), 1922, **13**, 41-53.

The serum of thyro-parathyroidectomized cats and dogs increases the excitability of isolated frog's nerve, but has no effect on muscle. A solution of guanidine carbonate, 0.01%, also increases the excitability of the nerve.—T. C. B.

The PINEAL body. Funk (E. H.), Progr. Med. (Phila.), 1921, **2**, 325-327.

A review of the clinical phenomena associated with derangements of pineal structure and function. No new data.—I. B.

Teratoma of the PINEAL combined with adenoma (Teratom der Zirbel, kombiniert mit Adenom). Klapproth (W.), Zentralbl. f. allg. Path. u. path. Anat. (Jena), 1922, **32**, 617-630; abst., Schweiz. med. Wchnschr. (Basel), 1923, **53**, 299.

The physiology of the PINEAL gland (Beiträge zur Physiologie der Zirbeldrüse). Kolmer (W.) & Löwy (R.), Arch. f. d. ges. Physiol. (Berl.), 1922, **196**, 1-14.

The pineal can be completely extirpated from rats of 30 to 50 grams weight without any after effects. Histological observations on a large number of such rats showed no trace of normal pineal gland remaining. The pineal is not necessary for life, and, contrary to Foà's results in these experiments, neither marked changes in fat formation nor earlier sexual development were observed. No macroscopic nor microscopic changes in the pineal were apparent in 4 castrated rats of 42 grams and 2 of 60 grams, 12 to 15 weeks after operation. No difference could be observed in the gland in pregnant and non-pregnant animals. Study of the nerve supply in a 3-months-old he-goat by sagittal series showed below the connective tissue envelope of the pineal a nerve fibre that, passing from the lower pole of the pineal, attached itself close to the vena magna galeni and was traceable to the tentorium. In this animal

the fibres were still non-medullated, and could therefore be easily distinguished from the fibre system of the commissura posterior or habenulae, which already was medullated. A corresponding system, in part medullated, was found in young dogs and monkeys, and, more difficultly traceable, in man. The authors name these nerve bundles "nervus conarii." They have been observed conspicuous, medullated, and with Schwanns' sheath, in adult animals. Since the n. conarii is in such close union with the venous system in which are the veins of the plexus chorioidei, the possibility follows that there is in the pineal and its nerve a system influencing the circulation in the plexus and with it the secretion of fluid. This does not exclude the formation of a hormone by the pineal.—A. T. C.

Pathology and physiology of the PINEAL (Untersuchungen zur Pathologie und Physiologie der Zirbeldrüsen). Walter, Klin. Wchnschr. (Berl.), 1922, **1**, 2401.

See Endocrin., **6**, 910.

Rôle of the liver in the SECRETIN distribution in the blood (Ueber die Rolle der Leber bei der Sekretinverteilung im Blute). Matsuoka (K.), Biochem. Ztschr. (Berl.), 1923, **136**, 377-391.

A large series of experiments on dogs showed that the secretin content of the liver runs parallel with that of the duodenal mucosa when various diets are fed. The liver contains the most secretin when a fat diet has been fed for a long time, and the least when carbohydrates have been ingested. The liver contains a somewhat similar secretin content after prolonged fasting and after a high fat diet. The secretin content of the duodenum is dependent upon the diet. These results are taken to signify that the secretin of intestinal origin is deposited in the liver and that no hepatogenous secretin is demonstrated as dependent upon the kind of diet.

—F. S. H.

The influence of the SPLEEN on acetonuria in the dog; a contribution to the interrelationship between spleen and LIVER (Ueber den Einfluss der Milz auf die Acetonurie beim Hunde, ein Beitrag zur Lehre von der Wechselwirkung zwischen Milz und Leber). Gutknecht (E.), Biochem. Ztschr. (Berl.), 1923, **137**, 439-449.

Diseases of the SPLEEN. Mayo (W. J.), Ann. Clin. Med. (Balt.), 1922, **1**, 141-145.

The author believes that the spleen has "no important function in internal secretion."—E. C. A.

SPLENIC opotherapy of costiveness (Opoterapia splenica e cura dalla stitichezza). di Poggio (E.), Rassegna di clin., terap. [etc.] (Roma), 1922, **21**, 194-202.

Exposition of many different clinical cases of costiveness cured by the use of a preparation of spleen, "Lienasi Serono."—P. N.

Radiation of the SPLEEN in menorrhagia and metrorrhagia (Unsere Milzreizbestrahlungen bei Menorrhagien und Metrorrhagien). Scholten (G. C. J.) & Voltz (F.), Monatschr. f. Geburtsch. u. Gynäk. (Berl.), 1923, **62**, 194-200.

Radiation of the spleen gave relief in some 20 cases of functional hemorrhage. Treatments were given bi-weekly.—F. S. H.

The influence of the THYMUS on the SPLEEN (Ricerche sperimentali riguardanti l'influenza del timo sulla milza). Baggio (G.), Arch. per le sc. med. (Torino), 1921, **44**, 177-187.

Pathology of the THYMUS. II. Bircher (E.), Deutsche Ztschr. f. Chir. (Leipz.), 1922, **176**, 362-379.

Bircher's experience in Switzerland has confirmed the importance of operative reduction of the thymus to break up the vicious circle of the thymic-lymphatic status. The hospital records showed this thymic-lymphatic status in 75% to 80% of the 35 deaths in 276 cases of tetanus, diphtheria, appendicitis, and acute infectious cholecystis. He contends that, with the mechanical factors, endocrine factors are involved in cases of "thymus death." He has operated on the thymus in 10 cases. The portions resected measured up to 10 cm. and weighed up to 45 gm. The benefit on the general condition thereafter was beyond question. The medulla always showed marked hyperplasia. He does not approve of roentgen treatment of persistent thymus or of the thyroid, regarding it as treatment in the dark, without possibility of correct dosage, while the treatment affects the whole of the thymus, and thymiprival idiocy is liable to follow. He has seen a case in which the growth was completely and permanently arrested 3 years after roentgen exposures of the thymus. In another case the exposures aggravated the symptoms so that the thymus had to be resected after all. At the operation it is easy to resect the abnormal and leave the normal portions.—J. Am. M. Ass., **80**, 1186.

THYMUS in internal medicine (Die therapeutische Bedeutung der Thymusdrüse in der inneren Medizin). Boenheim (F.), Deutsche med. Wchnschr. (Berl.), 1923, **49**, 469-472.

A general review. The author recommends treatment of Graves' disease with iodine and thymus. He advocates the use of thymus for chronic ulcers of the stomach with subacidity and tuberculosis, cancer, syphilis, asthenia, etc.—J. K.

The THYMUS in young children [Contributo allo studio anatomico e patologico del timo nella prima eta. III. Le fibre a graticcio (gitterfasern)]. Canelli (A.), Pediatria (Napoli), 1922, **30**, 58-64.

Case of persistent THYMUS. Chakraverti (A.), Calcutta M. J., 1922, **17**, 280-282; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1273.

THYMIC and pseudothymic stridor (Stridore timico e stridori pseudotimici). Cozzolino (O.), Boll. d. Soc. med. di Parma, 1921, **14**, 36.

See Endocrin., **6**, 569.

Status THYMICOLYMPHATICUS (Zur Frage des Status thymolymphaticus). v. Fahr (T.), Zentralbl. f. allg. Path. u. path. Anat. (Jena), 1922, **32**, No. 19; abst., Schweiz. med. Wchnschr. (Basel), 1923, **53**, 229.

(THYMUS) Histogenesis of Hassall's corpuscle. Cytogenetic unity of the reticular cells, the epithelial nests, the unicellular corpuscles and Hassall's corpuscles. (Histogénèse du corpuscule de Hassall. Unité cytogénétique des cellules de charpente, des placards épithéliaux, des corpuscules unicellulaires et des corpuscules hassalliens. Contribution expérimentale). Goldner (J.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 947-950.

Status THYMICOLYMPHATICUS in infancy. Kohlbry (C. O.), Minnesota Med. (St. Paul), 1923, **6**, 89-97; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1101.

Importance of the THYMUS in pathology (Die pathologische Bedeutung der Thymusdrüse für den Gesamtorganismus). Lorenz (H. E.), Ztschr. f. ärztl. Fortbild. (Jena), 1922, **19**, 517-522.

Some of the newer theories of the thymus are discussed. An especially good review is given of hyperplasia of the thymus, status thymicolymphaticus, the rôle attributed to the thymus in the pathogenesis of myasthenia pseudoparalytica and the theories as to the rôle of the thymus in Graves' disease.—J. K.

THYMECTOMY in infants. Marique (A.), Arch. franco-belges de chir. (Brux.), 1923, **26**, 127-131.

Marique has resected the thymus in 15 infants to relieve suffocation. One of the infants had 16 attacks of suffocation in one night. Through a low tracheotomy incision, he incised the capsule and shelled out as much of the two lobes as possible. He did not ligate the pedicle nor close the capsule nor suture the aponeuroses. The lips of the incision were held together with clips for two days. As soon as the infant roused from the anesthetic, the parents were allowed to take it home. If the intervention is strictly on the median line, there is no loss of blood. Most of the infants were about 3 months old, and 12 of the 15 were boys. Enough of the thymus must be left to insure ample secretion, and he asserts that the operation, under chloroform, is so simple and easy that any surgeon can undertake it without fear of mishap.—J. Am. M. Ass., **80**, 1345.

Five cases of THYMECTOMY (Quinze cas de thymectomie). Marique, Scalpel (Brux.), 1922, **75**, No. 50 (December 16); abst., Presse méd. (Par.), 1923, **31**, 87.

Acute death and its relations to the THYMUS and thymicolymphatic constitution. Nakada (T.), Kokka Igakkwai Zasshi, 1922, No. 425 (June); cit., Jap. Med. World (Tokyo), 1922, **2**, 351.

Surgery of the THYMUS gland; many disputed points illuminated for the general practitioner. Ochsner (A. J.) & H'Doubler (F. T.), Am. Physician (Phila.), 1922, **17**, 107-112.

The anaphylaxis of animals deprived of the THYMUS and THYROID (Sur l'anaphylaxie chez les animaux éthymisés et thyroprivés). Parhon (C. I.) & Ballif (L.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 544-545.

Enlarged THYMUS—clinical findings in a series of cases. Parsons (J. P.), Med. Clin. N. Am. (Phila.), 1923, **6**, 1319-1332.

Parsons urges the establishment of a routine examination of the thymus, especially in babies and children. The thymus may take any one of three positions, namely, cervical, cervicothoracic, and thoracic. The thoracic (around the great vessels at the base of the heart) is the most common position. Ordinarily, the x-ray shadow of the thymus in this position is not much wider than the sternum, but when the shadow is wider the bronchial glands, an enlarged thymus, or some anomaly of the great vessels must be considered. In a thymus enlarged longitudinally or anteroposteriorly x-ray examinations are not quite so satisfactory and must be made in the lateral position. The roentgenologist must also bear in mind such modifying factors as cardiac systole and diastole, the respiratory excursions, a distended abdomen, and the position of the patient. Despite all care and perfect technic, however, the x-ray picture of the chest in the diagnosis of thymic conditions is not infallible. A baby born with a large thymus may show very mild local thymic symptoms which may not attract attention until after the baby has had several colds. These babies are unduly susceptible to colds and infections. Thymic death is not necessarily sudden. In some cases at least the choking can be explained by a reflex condition produced by more or less edema in the smaller bronchioles.

—I. B.

Enlarged THYMUS in children (Bijdrage tot de kennis der thymusvergrooting bij kinderen). Prins (G. A.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1922, **66 (II)**, 1162-1163.

Sudden swelling of the left arm and hand were seen in a boy of 7 months. There were no enlarged lymph glands, nor was rickets manifest. The first diagnosis was mediastinal tumor or enlarged thymus. Pirquet's test was negative. Skiagram showed a large shadow on the thymus. A year later the arm and hand were normal in size and the child was normal, thus excluding the diagnosis, sarcoma.—J. K.

Hyperplasia of the THYMUS (Uber Thymushyperplasie). Schmincke (A.), Klin. Wchnschr. (Berl.), 1922, **1**, 2025-2029.

A general review, discussing the rôle attributed to the thymus in endocrine disorders.—J. K.

THYMUS of criminals. Shibata (I.), Kenyokwai Zasshi, 1922, No. 160 (Nov.); abst., Jap. Med. World (Tokyo), 1923, **3**, 59.

The author found that 3 criminals who had been executed had large thymi.—R. G. B.

Primary tumor of the THYMUS associated with tuberculosis. Sweany (H. C.), J. Am. M. Ass. (Chicago), 1923, **80**, 754-755.

(THYROID) Two cases of congenital myxedema ameliorated by late opotherapy (Deux cas de myxœdème congénital amélioré par l'opothérapie tardive). Abel & Hermann ,Soc. de méd. de Nancy, 1923, Feb. 14-28; abst., Presse méd. (Par.), 1923, **31**, 264.

Two congenital myxedematous dwarfs, aged 23 and 19 years, respectively, were submitted to 6 months of continuous thyroid treatment, the doses varying from 5 to 15 cgm. of dry powder. In one there was growth of 9 cm., improvement of facial expression, disappearance of infiltration of the skin, and from the psychic point of view, considerable development of activity, of affectivity and of intelligence. In the other subject there was slight increase in height (6 cm.), the physiognomy was less hebetic, but the psychic results were negative. Examination of the blood, urine, basal metabolism and neurovegetative tonus in the 2 subjects showed, however, that in the second as well as in the first, opotherapy had produced appreciable effects. There was augmentation of the white and the red blood cells, marked improvement of urinary excretion and considerable modification of the basal metabolism, which, from 13 to 27 calories before treatment, rose to 55 and 58 calories after treatment.—R. G. H.

(THYROID, ADRENAL) Vegetative nervous system and specific dynamic action (Beiträge zur Kenntnis der physiologische Wirkung der proteinogenen Amine. VI. Vegetatives Nerven-system und spezifisch-dynamische Wirkung). Abelin (J.), Biochem. Ztschr. (Berl.), 1923, **137**, 273-299.

White rats were used in these studies and the respiratory exchange determined according to Haldane's method. The extent of the specific dynamic action of meat was studied with and without **thyroid, adrenalin,** tyramin and phenylethylamin feeding. It was found that there is a close relation between the activity of the vegetative nervous system and the specific dynamic action, since the administration of stimulants of this system increased the specific dynamic action of the ingested meat.—F. S. H.

THYROIDECTOMY under local anesthesia. Allen (C. W.), South. M. J. (Birmingham), 1923, **16**, 364-366.

The rôle of the THYROID gland in the phenomenon of anaphylaxis (Le rôle de la glande thyroïde dans le phénomène de l'anaphylaxie). Applemans (R.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1242-1244.

Guinea-pigs were sensitized to human serum by subcutaneous injection, some before removing the thyroid, some at the time of operation, some several days after the operation. All died of anaphylactic shock when an intoxicating dose of serum was given. The conclusion is that the thyroid plays no rôle in anaphylaxis.—T. C. B.

(THYROID) Blepharochalasis, goiter and double lip (Das Syndrom Blepharochalasis, Struma und Doppellippe). Ascher (K. W.), Klin. Wchnschr. (Berl.), 1922, **1**, 2287-2288.

A girl of 16 is described. The father had a small goiter. The girl had had a goiter since she was 4 years of age, a duplication of the mucous membrane of the upper lip and swollen upper eyelids. A man of 39 was operated upon for glaucoma. Three years later he presented a typical picture,—double mucous membrane and red, thin skin of both upper eyelids,—except that instead of a goiter, both parotid glands were swollen. The author also observed 12 cases of blepharochalasis, noting the typical duplication of the mucous membrane of the upper lip 7 times; in 4 patients the thyroid was increased in size and 3 other patients had a real goiter. —J. K.

The relative number of leucocytes after injection of iron and THYROID preparations (Das relative weisse Blutbild nach Injektion von Eisen und Schilddrüsenpräparaten). Asher (L.) & Waser (A.), Ztschr. f. Biol. (München & Berl.), 1920, **71**, 107-116.

Subcutaneous injections of thyroid extract and especially administration of thyroid tablets cause increase of polynuclear leucocytes with corresponding decrease of lymphocytes. The total number of leucocytes is not altered. Thyroid extract and iron preparations seem to act as an excitant upon the bone-marrow. Erythrocytes remain unaltered.—A. B.

GOITER. Axtell (J. T.), Kansas M. Soc. J. (Topeka), 1923, **23**, 90-92; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1732.

(THYROID) Mongolism—Importance of early recognition and treatment. Barnes (N. P.), Ann. Clin. Med. (Balt.), 1922, **1**, 302-313.

This article contains a detailed list of physical findings in mongolism. Several cases are cited of mongolism in one of twins. Inasmuch as the great majority of mongols are born to mothers near 40 years of age, the author thinks endocrine exhaustion (possibly of the thyroid or other glands) in the mother may be an important predisposing factor. An important immediate factor in the child itself may be an imperfect functioning of the thymus, with possibly imperfect function of the anterior lobe of the pituitary contributing.

Early treatment with desiccated thymus is recommended. As a prophylactic, glandular support for the expectant mother is advised. Pluriglandular preparations are condemned.—E. C. A.

(THYROID) Action of quinidin in a subject with arhythmia and with a large goiter (Action de la quinidine dans un cas d'arythmie complète avec gros goitre). Benhamou (E.), Paris méd., 1923, **13**, 235-236.

At the time when arhythmia was treated with quinidin, the patient noticed that her goiter no longer troubled her, and even diminished rapidly in volume. She stated that the quinidin helped her goiter even more than her heart. The goiter almost disappeared. The author believes, therefore, that quinidin cured the goiter.

—R. G. H.

Technic of basal metabolism determination with demonstration of its practical application in a case of post-operative HYPOTHYROIDISM (Technik der Basalstoffwechselbestimmung, mit Demonstration ihrer Andwendbarkeit an einen Fall von operativem Hypothyreoidismus). Bircher (M. E.), Schweiz. med. Wchnschr. (Basel), 1923, **53**, 143-147.

The article presents the practical application of basal metabolism, omitting the theoretical consideration. The arguments as to the relative value of the different methods are taken up. The author gives a complete description of his own apparatus which is based upon the same principal as that of Benedict. The author used his technic and apparatus in studying the changes of the basal metabolism in a young woman of 32 years who had suffered from post-operative hypothyroidism, and of a patient who was treated with dried thyroid gland substance until symptoms of the disease disappeared.—A. C. M.

(THYROID Exophthalmic goiter after the menopause. Blamoutier (P.), Paris méd., 1922, **12**, 334-338 (October 14).

The symptoms of exophthalmic goiter were accompanied with kraurosis of the vulva and intense pruritus, general at first but later limited to the genital region—all developing after the menopause in the woman of 52. Great improvement to a practical cure followed three roentgen exposures of the thyroid, and several applications of the high frequency current to the vulva, supplemented with pituitary and ovarian treatment. The pruritus subsided entirely, but still returns to a slight extent if the ovarian treatment is neglected for a few days.—J. Am. M. Ass., **79**, 2040.

Nerves to the THYROID and PARATHYROID glands (Die Nerven der Schilddrüse und der Epithelkörperchen). Braeucker (W.), Anat. Anz. (Jena), 1922, **56**, 225-249.

A detailed description of a dissection of the nerves plexuses in the neck of a 7 months' fetus with special reference to the thyroid

and parathyroid glands. Two good cuts are included. The interlacing of fibers from spinal nerves, cranial nerves and sympathetic chain is extremely complex. Many fine nerves are traced to both the thyroid and parathyroids.—A. T. R.

Atypical exophthalmic GOITER. Bram (I.), Illinois M. J. (Oak Park), 1923, **43**, 311-314.

A brief discourse on the diagnosis of exophthalmic goiter based upon the author's definition of the disease: "Exophthalmic goiter (Graves' disease, Basedow's disease, Parry's disease, Flajani's disease) is a chronic, rarely an acute affection, apparently due to a dysfunction of the endocrine organs and of the vegetative nervous system, characterized by increased catabolism, weakness, wasting, emotional disturbances, afebrile heart hurry, tremor, dermographia, and frequently also by a varying degree of exophthalmos and thyroid swelling." Exophthalmos and goiter are inconstant, and because of this fact, Graves' disease is frequently misdiagnosed with resulting errors in therapeutic approach. Careful attention to details in history taking, physical examination and laboratory data reveals the fact that there are more cases of Graves' disease in our midst than were ever suspected. There is no line of demarkation indicating where eyes cease to be normal and exophthalmos begins; the same may be said of goiter. Hence in many patients the presence or absence of exophthalmos and of goiter is a matter of personal equation. Since exophthalmos and goiter, though present sooner or later in the majority of cases, are not essential to diagnosis, and since there is convincing clinical evidence to disprove the theory of hyperthyroidism as the cause of the disease, the terms "exophthalmic goiter" and "hyperthyroidism" lead to error and misconception in diagnosis and treatment, and should not be employed as synonyms of Graves' disease.—Author's Abst.

(THYROID) Puerperal metastasis in a goiter (Métastase puerperale dans un goître). Brino, Thèse de Strasb., 1921; abst., Arch. méd. belges (Brux.), 1922, **75**, 1137.

After a general, somewhat detailed review on thyroiditis, the author reports one personal observation. The subject had had a large goiter since youth which had increased during pregnancy, but which did not annoy her greatly. Several days following curettage the goiter increased in volume and became palpable. Fever persisted; swallowing was painful; respiration was difficult. The skin over the goiter became thick and unusually firm, but showed neither edema nor redness. Six days after the curettage serious asphyxia indicated the need of intervention. Kocher's incision was made; the lower right lobe was luxated; the outer covering of the goiter was sectioned; a stream of pus (350 cc.) flowed. The left lobe was incised in the same way. The gland was drained and the wound sutured. The goiter was considerably diminished in volume.

—R. G. H.

Hemorrhagic diathesis from HYPOTHYROIDISM in pregnancy (Diatesi emorragica da ipotiroidismo in gravidanza). Brisotto (P.), Arch. ital. di otol. [etc.] (Torino), 1922, **33**, 166-170.

DYSTHYROIDISM, anaphylaxis and epilepsy (Dysthyroidismus, Anaphylaxie und Epilepsie). Buscaino (V. M.), Schweiz. Arch. f. Neurol, u. Psychiat. (Zürich), 1922, **11**, 261-266.

A review of data previously published, discussing the presence of abnormal proteins in the thyroid in the conditions mentioned. See Endocrin., **5**, 683.—R. H. G.

Pathological anatomy of GOITER and its clinical manifestations (De anatomische pathologie van het struma in verbinding met de klinische gegevens). de Caluwe (A.), Vlaamsche geneesk. Tijdschr. (Gent), 1923, **4**, 25-34.

A good general review without new data on the histology of the different types of goiter. The author considers Graves' disease as typical hyperthyroidism.—J. K.

Variations in the weight of the normal THYROID gland and their significance (Variazioni del peso della ghiandola tiroide normale e loro significato). Castaldi (L.), Arch. ital. di anat. e di ambriol. (Firenze), 1922, **18**, (suppl.), 97-182.

An extensive biometrical study of nearly 300 thyroids. The subjects observed were from the province of Firenze and were of all ages up to 96. It was concluded that the absolute weight, frequency of large pyramidal lobe, accessory thyroids and other abnormalities vary directly from region to region with the prevalence of endemic cretinous struma. Absence or incomplete development of the isthmus and other deficiency anomalies vary inversely. No correlation was found between disease or occupation and thyroid weight. The thyroid has a minimum weight in proportion to stature at the time when growth in length is greatest (i. e., before puberty). There is a close correlation between the thyroid and sexual function. Maximum relative growth of the gland takes place with the onset of sexual functioning. It is largest from 40 to 60 years of age and decreases after the menopause. While the absolute weight is less in females than in males, the weight in proportion to stature is greater in the female. Growth is also completed earlier in females than in males. Every case is tabulated. Extensive literature is reported.—A. T. R.

The influence of the THYROID, ADRENALS and HYPOPHYSIS on the function of the kidney [Zur pathologischen Physiologie innersekretorischer Organe. (Die Einwirkung von Schilddrüse, Nebenniere und Hypophyse auf die Nierenfunktion)]. Claus (G.), Ergebn. d. allg. Path. u. path. Anat., etc. (Wiesb.), 1922, **20**, 436-387; abst., Ber. ü. d. ges. Physiol. (Berl.), 1923, **17**, 65.

A review, especially of the more recent German literature.

THYROID) Mongolian idiocy occurring in one of twins. Clay (H. T.), Arch. Pediat. (N. Y.), 1922, **39**, 726-730.

Basal metabolism. Its application to disorders of the THYROID. Conklin (S. D.), Atlantic M. J. (Harrisburg), 1923, **26**, 431-434.

(THYROID) Congenital myxedema (Experimentelle Untersuchungen an einem kongenitalen Myxödem). Cori (Gerty), Ztschr. f. d. ges. exper. Med. (Berl.), 1921, **25**, 150-169.

See Endocrin., **6**, 347.

Effects of irradiation of the THYROID on conception and the products of conception (Effets de l'irradiation du corps thyroïde sur la conception et les produits de la conception). Coulaud (E.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 20-21.—T. C. B.

The reticular material as an indicator of physiological reversal in secretory polarity in the THYROID cells of the guinea-pig. Cowdry (E. V.), Anat. Record (Phila.), 1922, **23**, 13 (Proc. Am. Ass. Anat.).

Primary sarcoma of the THYROID with latent pulmonary, renal and ganglionic metastases (Sarcoma primitivo della tiroide con metastasi polmonari, renali e ganglionari in un cave). Cremona (P.), N. Ercolani (Pisa), 1921, **26**, 365, 388.

Surgical treatment of HYPERTHYROIDISM. Crile (G. W.), South. M. J. (Birmingham), 1923, **16**, 459-462.

The technique of operations on the THYROID gland. Crile (G. W.) & Lower (W. E.), Surg. Gynec. & Obst. (Chicago), 1922, **34**, 258-264 (Feb.).

(THYROID) Frequency of goiters in Belgium (Etude sur la fréquence des goitres en Belgique). Dandois, Bull. Acad. roy. de méd. de Belg. (Brux.), 1922, 5 s., **2**, 200-207.

The mechanism of melanodermia in certain HYPERTHYROID conditions (Du mécanisme de la melanodermie dans certains états hyperthyroïdiens). Delahet, Arch. de méd. et de pharm. nav. (Par.), 1921, **111**, 464-472.

The association of melanodermia with hyperthyroidism is attributed to lesions of the adrenals. Two cases are reported in which tenderness and pain are evident in the renal-adrenal region.

—F. S. H.

(THYROID) Polyarthritis chronica deformans progressiva and Graves' disease. Deusch (G.), Klin. Wchnschr. (Berl.), 1922, **1**, 2226-2227.

The case is reported of a woman of 37. Typical Graves' disease set in when she was 14 years of age. At 19 the symptoms spon-

taneously improved and menstruation began and was quite regular. At 15 years both knee joints were swollen; this, however, disappeared. At 23 years the hand and finger joints symmetrically became stiff and typical arthritis deformans developed; she now has all the symptoms of this disease as well as of Graves' disease. The author believes this case to be a proof that arthritis deformans is due to incretory disorder.—J. K.

(THYROID) Recurrence of goiter (Klinische Erfahrungen bei 840 Kropfoperationen, mit besonderer Berücksichtigung der Kropf-Recidive und Recidiv-Operationen). Dubs (J.), Schweiz. med. Wchnschr. (Basel), 1922, **52**, 901-908.

Dubs relates that 6.2% of his 840 goiter operations were for recurrence. He tabulates the data from 26 cases in which paralysis of the recurrent laryngeal nerve followed the operation. He has the patient use his voice at each ligature, each clamping and each resection, and in this way was able to determine the exact cause responsible for the paralysis in all but 5 of the cases. In one patient the paralysis was bilateral, although the intervention had been on one side only. Reexamination later of 17 showed persistence of the paralysis in 11 and complete recovery in 4, with slight paralysis in 2. Recurrence of the goiter after resection was known in 55.2% of 255 cases reexamined later, and in half of the recurrence cases there were more or less serious disturbances. The interval before the recurrence developed was from 1 to 20 years; 12 years in 7 of the cases, and the interval was from 6 to 12 years in the 7 cases in which a second recurrence called for an operation. Such experiences urge the necessity for systematic iodin prophylaxis after goiter operations, at least in certain endemic foci. Conditions are much the same with goiter and with gastric ulcer; the cause still persists after excision of the lesion.—J. Am. M. Ass., **79**, 1643.

Cancer THYROIDIEN latent avec métastase fémorale. Durand, Soc. de chir. de Lyon, 1923 (January 11); abst., Presse méd. (Par.), 1923, **31**, 76.

Basal metabolism as a guide in the surgical treatment of goitre with HYPERTHROIDISM. Eberts (E. M.), Canad. M. Ass. J. (Toronto), 1921, **11**, 641-651.

It is held that "the basal metabolic rate is the only reliable index of the presence and degree of hyperthyroidism." The surgeon must also take into careful consideration the pulse and the condition of the heart, and especially the irritability of the nervous system. A wide margin of safety must be allowed when the nervous system bears the brunt of the intoxication. Twelve case histories are given, 7 of Graves' disease, and 5 of toxic adenoma. A chart is presented for each case showing that the basal metabolic rate in 10 cases out of 12 had fallen to normal in from 2 to 4 months.

—J. H.

Toxic Goitre. The effect of THYROIDECTOMY on the basal rate, the pulse rate and general nutrition. Eberts (E. M.), Canad. M. Ass. J. (Toronto), 1922, **12**, 219-225.

The author reports in detail 4 thyroidectomy cases, and says that they "reflect accurately our invariable experience in 50 consecutive cases of the effect of thyroidectomy upon the basal rate, the pulse rate and the general nutrition. In no case has the procedure failed to eliminate hyperthyroidism, reduce the pulse rate to normal and restore body weight." To secure these results ¾ to ⅞ of the gland must be removed and to maintain the results a prolonged period of rest after operation is essential.—J. H.

(THYROID) Hereditary myxedema. Ebright (G. E.), Med. Clin. N. Am. (Phila.), 1923, **6**, 1505-1508.

Report of a case of myxedema occurring in a woman during pregnancy, who gave birth to a cretin. Thyroid opotherapy continued in the case of both mother and child for one year resulted in cure, and though both patients have to date been without treatment for 10 years, they have remained normal.—I. B.

(THYROID) Goiter prophylaxis (Die Verhütung des Kropfes und des Kropfrecidives). v. Eggenberger (H.), Schweiz. med. Wchnschr. (Basel), 1923, **53**, 245-249.

A discussion of the present status of iodine goiter prophylaxis in Switzerland.—R. G. H.

(THYROID) The blood in myxedema. Emery (E. S.), Am. J. M. Sc. (Phila.), 1923, **165**, 577-583.

A study of 14 cases leads Emery to conclude that the blood picture associated with myxedema is not constant and that there are no changes which can be cited as typical of the disease. Usually, however, there is a moderate secondary anemia. The hemoglobin is usually reduced. The white blood corpuscles average about normal but tend to vary with the red blood count. The differential count usually shows the polymorphonuclear neutrophiles to be somewhat decreased in numbers. The lymphocytes may show a relative or absolute increase. There is no relationship between the degree of the anemia and the duration of the disease or the metabolic rate.

—R. G. H.

Recurrent GOITER (Ueber Kropfrezidive). Enderlen, München. med. Wchnschr., 1922, **69**, 1129.

(THYROID) Basal metabolism. Ervin (C. E.), Atlantic M. J. (Harrisburg), 1923, **26**, 429-431.

A brief review of the value of basal metabolism in its relation to thyroid disorders. Nothing new is offered.—I. B.

Graves' disease, hyperparasympathicotonic, familial; treatment by THYROID extract (Maladie de Basedow hyperparasympathicoton-

ique grave, familiale: traitement par l'extrait thyroïdien). Etienne (G.), Watrin (J.) & Richard (G.), Rev. méd. de l'est (Nancy), 1922, **50**, 325-329; abst.; Presse méd. (Par.), 1922, **30**, 936.

The authors conclude that this observation demonstrates the existence among subjects with Graves' disease of predominant hyperparasympathicotonus (intense reaction to pilocarpin). It likewise shows that there are subjects with exophthalmic goiter in whom thyroid extract is indicated therapeutically. A single injection of thyroid extract, such as that recommended by Parisot and Richard for the diagnosis of thyroid disorders, by the cardiovascular reactions and the alterations of urinary and carbohydrate metabolism, indicate the proper treatment to institute. The authors consider it preferable, just as in a series of glycemia and of azotemia determinations, to utilize the thyroid extract only in brief periods; it is thus that it presents its maximum efficiency and that it is best tolerated.
—R. G. H.

"GOITER heart" and "THYMUS heart" in newly born and infants (Kropfherz und Thymusherz der Neugebirene und Läuglinge). Feer (E.), Monatschr. f. Kinderh. (Leipz.), 1923, **25**, 88-104.

The endemic goiter of the infant often produces an enlarged heart (dilatation with hypertrophy). This "goiter heart" is usually of toxic origin and can be cured with iodine. Hyperplasia of the thymus as well as status thymolymphaticus is often complicated with slight enlargement of the heart. Often in one infant a large goiter and a large thymus are found together, thus explaining why the heart is often so large at this age. In young children it is often difficult to distinguish with x-rays between the shadow of the thymus and of the heart. Therefore, a large thymus is sometimes diagnosed as a large heart.—J. K.

(THYROID) Respiratory exchange in cretinism and Mongolian idiocy. Flemming (G. G.), Quart. J. Med. (Oxford), 1922, **16**, 11-21.

The basal metabolism was unduly low in the untreated cretin. Thyroid treatment raised the metabolism to about the normal level. The basal metabolism was normal in 6 Mongols. Thyroid treatment had no effect on the basal metabolism of a Mongol. Fever caused a rise in the metabolism of a Mongol. These results indicate that the basal metabolism rate referred to the body weight gives a reliable index of nutrition.—Chem. Abst., **17**, 417.

(THYROID) The surgical treatment of goiter. Foss (H. L.), Atlantic M. J. (Harrisburg), 1923, **26**, 508-516.

This is a review of the etiology, pathology and the rationale of surgical treatment of goiter, as viewed through the medium of the author's experience. Foss is very emphatic in his statement to the

effect that with the necessary team work no mode of treatment compares with surgery in the therapeusis of goiter.—I. B.

Anemia due to THYROID dysfunction (Anaemie door dysfunctie van de schildklier). Frank (E. S.), Nederl. Tijdschr. v. Geneesk. (Haarlem), 1922, **66 (II)**, 1223-1224.

Description of a girl of 5, who was pale, but very jolly, bright and intelligent. Her face was yellow; the hair on the head was thin, the thyroid could be felt; Pirquet's test was negative. The blood contained 8,000 white and 3,350,000 red corpuscles (1-2% normoblasts).—J. K.

(THYROID) Roentgen-ray treatment of exophthalmic goiter. Fried (C.), Deutsche Ztschr. f. Chir. (Leipz.), 1922, **176**, 254-272.

Fried has reexamined regularly every month 13 patients with exophthalmic goiter since they were apparently cured by roentgen treatment. Both thyroid and **thymus** have been exposed to the rays, the dose being 80 and 91% of the erythema dose, with zinc filter. The exposure was repeated after an interval of 2 to 6 months. In one case a third exposure was given, and in 3 only a single exposure was made. The hemoglobin percentage always increased. No drugs were given, but out-door life was considered an essential element in the treatment. The women were all out-patients. Subjective improvement was noted first, but the objective signs soon followed. The exophthalmos seems to have subsided in all but one case; but in nearly all there is still a tendency to vasomotor instability and excitement, so that the patients cannot be regarded as fully recovered.—J. Am. M. Ass., **80**, 967.

The effect of THYROID gland from young calf upon the blood sugar in depancreatized dogs. Friedman (G. A.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 516-518.

Doses of adult bovine thyroid produce glycosuria in certain cases. Calves' thyroid, in contrast to the adult gland, contains no iodine. With an alcoholic extract the author demonstrated an apparent reduction in blood sugar in both normal and depancreatized animals, whether the solution was given intravenously, subcutaneously, or by mouth.—J. C. D.

The relation of the THYROID and parathyroids to pancreatic diabetes in dogs. Friedman (G. A.) & Gottesman (J.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1921, **19**, 215-221.

The authors outline a series of experiments on dogs. They conclude that diabetic dogs are more susceptible to tetany after partial parathyroidectomy and thyroidectomy than non-diabetic dogs after the same procedure. The removal of a thyroid in diabetic dogs seems to check the glycosuria provided tetany does not occur. If tetany does occur intravenous injections of calcium lactate may act

as a palliative in checking temporarily both the tetanic seizures and glycosuria.—J. C. D.

History and symptoms of THYROIDISM due to iodine administration (Zur Geschickte und Symptomatologie der Iodothyreoidismus). Friedman (L.), München. med. Wchnschr., 1922, **69**, 1377-1378.

A patient with pyorrhea alveolaris was treated for many months with Pregl's solution, which contains iodine. A condition closely resembling hyperthyroidism developed. The author advises extreme care in the use of iodine, especially when treating patients with goiter.—J. K.

THYROIDECTOMY and immunity; THYROID allergy (Thyroïdectomie et immunité: allergie thyroïdienne). Garibaldi (A.), Compt. rend. Acad. d. sc. (Par.), 1923, **176**, 1341-1343.

A theoretical discussion with no new data.—A. T. C.

The functional relations of the THYROID with the other incretory glands (Les relations functionnelles de la thyroïde avec les autres glandes à sécrétion interne). Garnier (M.), J. méd. franç. (Par.), 1921, **10**, 450-457.

Eclamptic tetany after THYROIDECTOMY (Tétanie à forme éclamptique après thyroïdectomie). Gaudier, Swynghedauw & Morel, Réunion méd.-chir. d. hop. de Lille, 1923, Feb. 19; abst., Presse méd. (Par.), 1923, **31**, 226.

Endemic GOITER in lower Austria (Der endemische Kropf in Niederösterreich). Geringer (J.), Wien. klin. Wchnschr., 1923, **36**, 186-189.

From this geographical study the author concluded that goiter is a constitutional disease frequently found in certain districts. Women are more often affected than men. Heredity also plays a rôle. Goiter is more prevalent in the higher regions than in the valleys. The cause of goiter seems to be a want of iodine in the food. Even new-born children may have goiters. The theory explaining goiter as an infection should be rejected. Ingestion of iodine as a prophylactic measure ought to be propagated by the government; this might best be accomplished by allowing only the sale of kitchen salt which contains 0.0004% iodine. It would be a valuable contribution to statistics if all cases of goiter were registered.—J. K.

Histological study of the effect of ligation of the THYROID vessels in exophthalmic goiter. Giordano (A. S.) & Caylor (H. D.), Surg., Gynec. & Obst. (Chicago), 1923, **35**, 75; abst., Med. Sc. (Lond.), 1923, **8**, 212.

The value of basal metabolic rate determinations and the EPINEPHRIN test in the diagnosis and treatment of THYROID disor-

ders. Goetsch (E.), Long Island M. J. (Brooklyn), 1922, **16**, 155-162.

The author points out that both these methods should be used. The epinephrin test may reveal cases that would be overlooked if the basal metabolism determinations alone were relied on. Moreover, the epinephrin test serves as a check on the technical errors of the other.—J. C. D.

Clinical morphological forms of GOITER (Ueber klinischmorphologische Kropfformen). Gold (E.) & Orator (V.), Wien. klin. Wchnschr., 1923, **36**, 309-310.

The authors propose the following classification of goiter: (1) aplasia, including atrophy and myxedema; (2) euplasia, including the goiter of pregnancy and of school children; (3) hyperplasia, including diffuse, parenchymatous, neonatal struma; diffuse, colloid, macrofollicular struma (this last form is divided into a proliferating and a non-proliferating form); diffuse, colloid, microfollicular struma, as often seen in the mountain districts; diffuse, parenchymatous struma as in Graves' disease; and diffuse, colloid struma of exophthalmic goiter (this type is always severe and toxic); (4) hyperplastic, adenomatous forms; and (5) adenomatous forms, often with symptoms of hypothroidism or of hyperthyroidism with symptoms of Graves' disease.—J. K.

(THYROID) X-ray and radium treatment of goiter. Grier (G. W.), Atlantic M. J. (Harrisburg), 1923, **26**, 516-519.

In discussing the indications and contraindications for x-ray and radium treatment of goiter the essential prerequisite is a working classification. Grier divides his cases into goiter with hyperthyroidism, and goiter without hyperthyroidism. Subjects in the first group may be treated by radiation; those in the second group should never be so treated. The author goes into the details of the diagnosis of the types of goiter under discussion. Treatment for cosmetic effect only is not to be entertained for two reasons: first, if there is no hyperthyroidism the treatment is harmful; second, the size of the gland is usually unaffected except in hyperthyroid cases. The author advises rather mild dosage of irradiation with a treatment once a week, exposing one lobe of the gland at each sitting. The lateral lobes alone are treated; the isthmus is ignored. Each lateral area is given about one-half a skin erythema dose at each sitting, and after both lobes have been treated the patient is given a rest from treatment for 2 weeks, when the process is repeated. In this way the untoward results from x-ray treatment are avoided. The x-ray penetration corresponds to a 9-inch parallel gap, filtered through 6 mm. of aluminum. In using radium Grier employs only the gamma rays, with the radium placed 1 inch from the skin. He does not routinely expose the **thymus** area in cases of hyperthyroidism unless roentgenograms show that the thyroid

extends down into the chest, or that the thymus is enlarged. Hygienic and other approved measures are useful supplements in treatment. The author believes that the action of radium and roentgen rays is identical and that either may be used in a given case. If after 6 months of treatment the patient is not materially improved, surgical intervention should be considered.—I. B.

(THYROID) What types of goiter should receive medical treatment? Guthrie (D.), Atlantic M. J. (Harrisburg), 1923, **26**, 506-508.

In this paper the author attempts to discriminate between goiters amenable to non-surgical and those requiring surgical management. He insists that there is today much unnecessary surgery employed in the treatment of goiter. Many patients suffering from constitutional diseases but having at the same time non-toxic goiter are subjected to ill-advised operations after incomplete examinations and hasty diagnoses. Simple endemic goiter and the goiter of adolescence or pregnancy should be regarded as a deficiency disease due to lack of iodin in the organism, and amenable to prophylaxis and medical treatment. Surgery should be considered only if the case is of long standing and has resisted medical treatment. Colloid goiter should also be treated by medical measures unless pressure symptoms exist, or unless cyst formation has occurred. Malignant disease of the thyroid which can be diagnosed clinically before operation cannot be cured by surgery, as it is then too late. All substernal or intrathoracic goiters are surgical cases. Non-toxic adenoma which has undergone cystic or calcareous degeneration should be treated surgically, though prior to these changes prophylactic measures are sometimes useful. Toxic adenoma is invariably a condition in which surgical methods should be employed. The acutely sick exophthalmic goiter patient is essentially a medical case, in which x-ray and radium are useful supplements. However, if the patient cannot afford the time necessary for good non-surgical response, the author advises operation. No thyroid enlargement should be operated upon until a most careful, painstaking and thorough examination is made; it is thus that unnecessary, unscientific and unwarranted surgery of the thyroid gland will be avoided.
—I. B.

(THYROID) On the amounts of enzymes in duodenal fluid in Graves' disease. Gyotoku (K.), Jap. Med. World (Tokyo), 1922, **2**, 339-343.

An examination of the duodenal fluid was made in 20 cases of Graves' disease. In 60% the enzymes were below normal in amount. No relation could be discovered between achylia or hypochlorhydria occurring in Graves' disease and duodenal enzymes. No relation was apparent between duodenal enzymes and disturbances of carbohydrate metabolism.—R. G. H.

(THYROID) A simple method for calculating the basal metabolic rate. Haden (R. L.), J. Lab. & Clin. M. (St. Louis), 1923, **8**, 272-275.

Of value to the laboratory technician.—I. B.

(THYROID) Mongolism in one of twins and the etiology of mongolism. Halbertsma (T.), Am. J. Dis. Child. (Chicago), 1923, **25**, 350-354.

The writer reports 5 cases.—M. B. G.

Clinical notes on hearts in HYPERTHYROIDISM. Hamilton (B. E.), Boston M. & S. J., 1922, **186**, 216-218.

The hearts of most thyroid patients show no damage. Auricular fibrillation is the most usual type of damage, particularly in middle age or in cases of rheumatic infection. This condition is improved by digitalis and by operation.—J. C. D.

The effect of the loss of the THYROID and PARATHYROID glands at 100 days of age on the growth in body length, body weight and tail length of male and female albino rats. Hammett (F. S.), Am. J. Physiol. (Balt.), 1923, **63**, 218-243.

Albino rats were used, the groups being selected from litters of 5 or more of the same sex, and each group kept in a separate cage. All were from a "gentled" colony, and weaned from the 23rd to the 28th day. The age of 100 days was selected as rats complete their period of rapid growth at about this time, according to Donaldson. The terminal point of the experiments was 150 days, when the rats were growing at the characteristic rate for the mature animal. When litters of 5 rats of the same sex were used, 2 were parathyroidectomized ("parathys"), 2 were thyro-parathyroidectomized ("thypars") and 1 was kept as control. Sexes were kept separate. The diet was the same for all. The rats were weighed and measured once a week. Qualitatively both sexes showed a retardation of growth in the parts measured. Quantitatively the females showed a greater retardation than the males, from which it would appear that females are more dependent on the stabilizing influence of the two glands than are males. Growth in body weight was inhibited more than body length and tail length, which means that cell growth by accretion is more susceptible to disturbing factors than cell growth by division. The growth capacity (increment per week $\div$ wt. at beginning of week $\times$ 100) showed alternate increase and decrease in value in the "parathys," indicating repeated accumulation and subsequent elimination or destruction of toxic substances. This is not true of thyroidless rats.—T. C. B.

Surgical control of exophthalmic GOITER. Harrison (B. I.), J. Tenn. M. Ass. (Nashville), 1923, **15**, 473-476; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1271.

The THYROID and metamorphosis (Beiträge zur biologischen Bedeutung der innersekretorischen Organe. I. Schilddrüse und

Metamorphose). Hart (C.), Arch. f. d. ges. Physiol. (Berl.), 1922, **196**, 127-150.

Chiefly a theoretical discussion leading to the following conclusions: External factors of the surroundings produce a determining action on commencement and cessation of metamorphosis only by influence on thyroid function. External influences on the organism, of whatever kind (diet, climate, surroundings), act only through the intermediation of the endocrine system.—A. T. C.

The influence of abnormal external temperatures on the THYROID and TESTES (Beiträge zur biologischen Bedeutung der innersekretorischen Organe. II. Der Einfluss abnormer Aussentemperaturen auf Schilddrüse und Hoden). Hart (C.), Arch. f. d. ges. Physiol. (Berl.), 1922, **196**, 151-176.

House-mice, kept at 32-40° C. for some days, showed marked atrophy of the thyroid, sometimes almost complete disappearance of colloid, marked degeneration of the spermatozoa-forming epithelium, and complete cessation of spermatozoa-production in the testes. When they were kept at 4-7° C. there was increased function of thyroid, the follicles became packed with colloid, and there were marked secretion-vacuoles in the cubical epithelium, while active spermatogenesis was visible in sections of the testes.—A. T. C.

(THYROID) A goiter family (Eine Kropffamilie). Hechinger, Klin Wchnschr. (Berl.), 1922, **1**, 1925; see also München. med. Wchnschr., 1922, **69**, 1135.

A short note concerning a family of 5, all of whom developed goiter after moving from a district with little goiter to one in which goiter was frequent.—J. K.

Functional diagnosis of the THYROID (Zur funktionellen Schilddrüsendiagnostik). Hellwig (A.) & Neuschloss (S. M.), Klin. Wchnschr. (Berl.), 1922, **1**, 1988-1992; see also p. 1128.

As a method for determining the degree of activity of the thyroid the authors recommend study of the viscosity of the blood. Before carrying out this kind of work no drugs having influence on the viscosity can be given and all diseases which may cause changes in the blood must be excluded. Increased viscosity means that there is hypofunction of the thyroid and low viscosity, hyperfunction.

—J. K.

Effect of THYROID treatment upon the basal metabolism in two cases of typical congenital myxedema (Effet du traitement thyroïdien sur le métabolisme basal dans deux cas de myxoedème congenital typique). Hermann (H.) & Abel (E.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 93-95.—T. C. B.

THYROID therapy (Uber den Jodgehalt der Schilddrüse). Herzfeld (E.) & Klinger (R.), Schweiz. med. Wchnschr. (Basel), 1922, **52**, 724-727.

The iodine content of the thyroid shows large individual differences. During the summer it is larger. The authors recommend the artificial addition of iodine.—Physiol. Abst., **7**, 505.

The effect of tryptophan on the formation of hemoglobin in THYROIDECTOMIZED rabbits. Hirazawa (S.) & Otani (Y.), Nihon Naikagakukai Zasshi (Tokyo), 1923, **10**, 984-1009.

The authors observed the production of anemia and the speed of recovery in normal and thyroidectomized rabbits following an injection of choral phenylhydrazine. They found that thyroidectomy retards the recovery, but an application of tryptophan promotes it, not only in normal rabbits but also in those in which the thyroid had been removed. Hence the thyroid seemed to have no direct action on the formation of hemoglobin from tryptophan, although Matsuoka proved that the thyroid aids the oxidation of tryptophan to kinulen acid. Thyroxin (Kendall), therefore, seems to have no direct relation to the transformation from tryptophan to the pyrol derivative.—S. K.

The influence of the THYROID on some toxic glycemias (Ueber den Einfluss der Schilddrüse auf einige toxische Glykämien). Holm (K.) & Bornstein (A.), Biochem. Ztschr. (Berl.), 1923, **135**, 532-535.

The thyroid gland was removed from dogs and the parathyroids were not. The effect of pilocarpin on the blood sugar was then determined and compared with that of **adrenalin.** The authors think that their results show a lack of hyperglycemic response to pilocarpin as well as to adrenalin. Since pilocarpin hyperglycemia is independent of the adrenals and of a different nature than adrenalin hyperglycemia it is concluded that after thyroid extirpation the mobilization of glycogen by the various neural stimuli is disturbed.
—F. S. H.

(THYROID) Diagnosis, prognosis and treatment of Graves' disease (Diagnose, Prognose und Behandlung der Basedowschen Krankheit). Holmgren (J.), Wien. med. Wchnschr., 1922, **72**, 29.

See Endocrin., **6**, 465.

(THYROID) Latent Basedow's disease (Der latente Basedow). Holst (J.), Schweiz. med. Wchnschr. (Basel), 1923, **53**, 147-148.

Holst discusses the changes of the basal metabolism as controlled by treatment with iodine in the cases of endemic goiter. The case is reported of a patient who never showed symptoms of Basedow's disease. The basal metabolism test, however, showed that the patient had hyperthyroidism, because the percentage was 125-130% of the normal. The patient was deprived of part of his thyroid, after which the basal metabolism became normal. The author cites 3 other cases of well established latent Basedow's disease. The basal metabolism of each patient was high. After

each patient was operated upon (strumectomis partialis), the basal metabolism value became almost normal. The author believes that cases of hyperthyroidism are relatively frequent, especially among Norwegians. He discusses the question of goiter which affects the people of Switzerland in comparison with that which affects the people of Norway.—A. C. M.

The incidence and characteristics of DYSTHYROIDISM as an ex-service disability; with especial reference to the findings in discharged soldiers and sailors, examined for the bureau of war risk insurance (now the veterans' bureau), district No. 2. Huddleson (J. H.) & Bailey (M. P.), Arch. Neurol. & Psychiat. (Chicago), 1922, **7**, 332-340.

The authors conclude that the incidence of dysthyroidism, increased by the war, is now on the decline but has not yet reached its prewar level; that the bulk of this increase is made up of toxic non-exophthalmic, vagotonic cases, and cases transitional between this and the sympathicotonic type. They believe there is a distinct tendency toward improvement in all types of toxic cases caused by the war.—C. E. N.

THYROIDECTOMY in cattle (La tiroidectomía en los bovinos). Hug (E.), Rev. Asoc. méd. argent. (Buenos Aires), 1921, **34**, 163-165 (Sect. Soc. de biol.).

See Endocrin., **6**, 353.

THYROIDECTOMY. Hughes (M. O.), Med. J. Australia (Sydney), 1922, **ii**, 501-502.

A brief report on methods and results in a hundred cases of goiter. The period of observation is not stated in most cases. The results in 61 of the cases, which were of exophthalmic goiter, were:

Immediate mortality	2
Death from other causes	2
Cures by first operation	21
Cures by second operation	4
Doubtful results	10
Requiring second operation	10
Requiring third operation	1
Unknown results	11

—R. G. H.

The acetonitril test for THYROID and of some alterations of metabolism. Hunt (R.), Am. J. Physiol. (Balt.), 1923, **63**, 257-299.

Experiment confirms and extends the work previously reported as to the marked effect of diet upon the resistance of mice to acetonitril, and also indicates that vitamines may be concerned. The paper is rather too long and not readily abstracted.—T. C. B.

The comparative physiological activity of THYROID and THYROXIN. Hunt (R.), J. Pharmacol. & Exper. Therap. (Balt.), 1923, **21**, 199.

Further work on the acetonitril test for thyroid confirmed previous conclusions as to its specificity and delicacy. By this test and the effects on growth the parallelism between the iodin content of the thyroid and physiological activity has been confirmed. Physiologically "inactive" iodin was not found in any normal thyroid. Thyroxin, given by mouth or intravenously, was less active than equi-iodin doses of thyroid, as shown by the acetonitril test and by the effects on growth. The conclusion is drawn that thyroxin when given as a drug does not represent completely the physiological activity of the thyroid.—G. E. B.

(THYROID) X-ray treatment of goiter (Experimenteller Beitrag zur Frage der Verwachsung nach Strumenbestrahlung). von der Hütten (F.), München. med. Wchnschr., 1921, **68**, 983; see also, Med. Klin. (Berl.), 1921, **17**, 240.

See Endocrin., **5**, 589.

The disturbance of the THYROID function and the dissociation curve of oxygen of the blood. Iizuka (N.), Nihon Naikagakukai Zasshi (Tokyo), 1923, **10**, 1043-1062.

In blood taken from men with disturbances of thyroid function and from rabbits either thyroidectomized or fed with thyroid, the author examined, by the use of a stalagmometer, the dissociation curve of oxygen, its variations in regard to alkali and the drop-number. With thyroid hyperfunction and hypofunction the dissociation curve of oxygen was lowered. In the latter case the curve could be elevated by the addition of a slight quantity of alkali, but this was not the case in the former. The drop-number decreased with hyperfunction, and increased with hypofunction. If the function of the thyroid was brought about to normal, all these alterations seemed to disappear. The author explained the facts found in hyperfunction as being due to some intoxication with thyroid, and those found in hypofunction as having resulted from an acidosis and an increase of the amount of fat and lipoids in the blood.—S. K.

Multiple toxic adenoma of the THYROID. Jackson (A. S.), Wisconsin M. J. (Milwaukee), 1923, **21**, 461-462; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1414.

Relation of the basal metabolic rate to diseases of the THYROID gland. Jackson (A. S.) & Jackson (R. H.), Am. J. Surg. (N. Y.), 1923, **37**, 86-90.

A general discussion illustrated by original photographs.

Therapeutic use of iodine in GOITER (Ueber die therapeutische Anwendung des Iods bei Strumen). Jagić (N.) & Spengler (G.), Wien. klin. Wchnschr., 1923, **36**, 264-265.

In most cases of goiter small doses of iodine are harmless and they are valuable in young patients with simple parenchymatous goiters. Splendid results may be obtained also in Graves' disease, although great care is necessary. When exact doses are given the body weight either remains unaltered or rises.—J. K.

The chemistry and pharmacologic action of THYROXIN. Kendall (E. C.), Ann. Clin. Med. (Balt.), 1923, **1**, 256-258.

Thyroxin acts as a catalyst. The molecule is about 65% iodine. Iodine without the nucleus is physiologically inactive. The effect of the nucleus without iodine is unknown.—Chem. Abst., **17**, 1282.

Influence of the THYROID on anaphylaxis; its administration per os a short time before the intoxicating injection (Glande thyroïde et anaphylaxie. Influence de la glande thyroïde sur le choc anaphylactique lors de son administration per os peu de temps avant l'injection déchaînante). Képinow (L.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 846-848.

Small doses of the gland given by mouth on the day of the intoxicating injection have no effect; the same dose given 2 days before inhibits the anaphylaxis; large doses render the animal more sensitive.—T. C. B.

Basal metabolic rate in untreated exophthalmic GOITER. Kessel (L.), Tr. Am. Soc. Clin. Investigation, 1923, April 30.

A study of the basal metabolism in 50 unselected cases of clear-cut exophthalmic goiter is reported. Forty-six records are complete and show an average initial reading of plus 44%. At the end of 3 months, 6 months and 12 months, respectively, the readings are: 3 months, 28; 6 months, 22; 12 months, 19. There is, therefore, a tendency in these patients, managed without the institution of specific therapy (spontaneous course), to a rapid, marked and progressive fall in the basal metabolism, which is accompanied by a corresponding fall in the symptoms score, in the exophthalmometer reading, in the neck circumference and by a gain in weight. Coincidently, there is a return to economic and social utility in these patients, all of whom were confronted with great economic strain. The course of the basal metabolism should serve as a normal standard by which specific therapy may be objectively evaluated.

—J. Am. M. Ass., **80**, 1727.

(THYROID) The clinical manifestations of disturbances of the involuntary nervous system (autonomic imbalance). Kessel (L.) & Hyman (T.), Am. J. M. Sc. (Phila.), 1923, **165**, 513-530.

An analysis of 86 cases leads the authors to conclude, among other things, that instability of the involuntary nervous system probably constitutes a diathesis. The symptoms are strikingly similar to those in Graves' syndrome. Autonomic imbalance may coexist with myxedema. Hyperplasia of the thyroid gland is a very fre-

quent accompaniment of the syndrome. There is never present in autonomic imbalance a distinct and continuous elevation of the basal metabolism. This serves as a crucial differential point from Graves' syndrome. There are no scientific data that substantiate the participation of the ductless glands in the production of this syndrome. While patients with autonomic imbalance usually are sensitive to either atropine or adrenalin, it is possible to have the syndrome without drug sensitiveness; also it is possible without active autonomic imbalance to have drug sensitiveness. The explanation of these facts on a pharmacological basis is recorded. Clear-cut subgrouping of these patients into vagotonic and sympathicotonic cannot be made clinically until some definite information with regard to the tonus of the involuntary nervous system is forthcoming. Autonomic imbalance can rarely be permanently arrested. Usually the symptoms may be alleviated, but the diathesis persists. Hormone therapy is without foundation, and, practically, it is useless.—R. G. H.

(THYROID) Diagnosis and roentgen-ray treatment of toxic goiter; report of five cases. Killinger (W. E.), Virginia M. Month. (Richmond), 1922, **49**, 469-472 (November); cit., J. Am. M. Ass. (Chicago), 1922, **79**, 2036.

GOITER in children. Klein (S.), Arch. Pediat. (N. Y.), 1922, **39**, 786-799.

Ten cases are reported in which this condition was not endemic, nor very frequent. All the cases occurred in females. None gave a familial history. All but one were precocious in varying degrees. The ages of the patients ranged from 9 to 15 years in eight cases and 17 to 19 in the other two. There were 6 symmetrical thyroids and only 1 with the right lobe more prominent. There were 3 cases of hyperthyroidism, 2 with thyroid enlargement and 1 without apparent change in the gland. All had exophthalmos in varying degrees. Mentality of all was normal for the age. All 3 cases of hyperthyroidism gave a history of tonsillectomy as the beginning of their trouble.—M. B. G.

(THYROID) Recurrent goiter (Uber Kropfrezidive). Klose (H.) & Hellwig (A.), Klin. Wchnschr. (Berl.), 1922, **1**, 1885-1889.

Of the 167 thyroidectomized subjects examined, 40% either had a recurrent goiter or had been operated upon again. In 20.5% of these cases operation had been performed with ligation of more than 2 of the arteries; in 13% the operation had been performed on both sides, thus proving that the most extensive operation does not always bring permanent relief. The authors confirmed Roux' theory that the younger the patient the greater the possibility of recurrence. Colloid goiters are most likely of any type to recur. The recurrent goiter usually has the same histological picture as the original goiter.—J. K.

(THYROID) Chronic benign hyperthyroidism (Chronische gutartige Hyperthyreoidie). Konitz, München. med. Wchnschr., 1922, **69**, 97.

Data reported elsewhere.—J. K.

(THYROID) Graves' disease; its pathogenesis and its treatment (De ziekte van Basedow, haar pathogenese en haar behandelung). Koopman (J.), Vlaamsche geneesk. Tijdschr. (Gent), 1923, **4**, 2-12.

Koopman does not agree with de Stella that Graves' disease is due to thyroiditis. He believes that the pathogenesis of Graves' disease is so obscure that we scarcely know what direction investigation should take in order to find a solution of this problem.

—Author's Abst.

The THYROID and essential metrorrhagias (Schilddrüse und essentielle Uterusblutungen). Kräuter (R.), München. med. Wchnschr., 1922, **69**, 1601-1602.

In many cases of metrorrhagia in which no local causes are detected the patient shows all or many symptoms of low thyroid activity and organotherapy with thyroid is nearly always successful, though some cases of indubitable hypothyroidism are not influenced by organotherapy. Diagnosis is often difficult; it is well to remember that the coagulation time of the blood is usually short and that the well known blood picture of Kocher is usually, though not always, found. Exact diagnosis is necessary for proper treatment.—J. K.

Description of an axolotl which, fed on THYROID gland, changed into an Ambystoma (Vorstellung eines Axolotls, welcher durch Fütterung mit Schilddrüse in ein Amblystoma verwandelt wurde). Krestownikoff (A. N.), Russki Physiol. J. imeni Ssetsch., 1921, **3**, 6-7; abst., Ber. ü. d. ges. Physiol. (Berl.), 1922, **14**, 175.

Three albino axolotls received weekly 0.4 gm. each of fresh thyroid gland of a cat. Only one developed into a salamander, type Ambystoma. The other 2 died shortly after the feeding began. In all 3 it was noted that even after the ninth day there was considerable atrophy of the gills. After 3 weeks, the gill clefts and the external branchia had disappeared.—R. G. H.

Extirpation of an enormous solid tumor of the THYROID (Sulla estirpazione di un enorme tumore solido della Tiroide). Laccetti (C.), Ann. ital. di chir. (Napoli), 1923, **2**, 290-298.

(THYROID) Indications for surgical intervention in toxic goiter. Langer (C.), Illinois M. J. (Oak Park), 1922, **42**, 448-449. (December); cit., J. Am. M. Ass. (Chicago), 1923, **80**, 208.

(THYROID) The Kottmann reaction (Zur Kottmannschen Jodsilbermethode). Lauda (E.), Ztschr. f. Immunitätsforsch. u. exper.

Therap. (Jena), 1922, **34**, 455-472; abst., Ber. ü. d. ges. Physiol. (Berl.), 1922, **15**, 314.

The serum of 3 carcinoma patients gave a positive Kottmann reaction. Its significance in thyropathies therefore needs further critical study.—R. G. H.

An unusual post-operative phenomenon in THYROIDECTOMY. Lauddie (A. K.), Indian Med. Gaz. (Calcutta), 1922, **57**, 95-96.

An enlarged right thyroid was removed in a male patient of 30. About two hours after the operation the neck was noticed to be swollen to an unusual extent. On examination the tissues were found to be edematous. There was no hemorrhage, no tachycardia, dyspnea, dysphagia, nerve pressure or other symptoms of toxic secretion. The author is unable to explain the unusual swelling.

—W. J. A.

Syphilis as a factor in THYROID and PITUITARY disease (Om lues sasom etiologiskt moment vid vissa sjukdomar i sköldkörteln och i hypophysis cerebri). Lennmalm (F.), Svenska Läk. Handl. (Stockholm), 1922, **8**, 257-278.

Diseases of the thyroid and pituitary gland with following endocrine disturbances are often caused by syphilis. The author gives an extensive review of the literature on this subject. He describes 3 cases of **myxedema**, 1 case of exophthalmic goiter, 3 cases of **acromegaly** and 2 cases of **dystrophia adiposogenitalis** with syphilis as a probable etiologic factor.—H. B.

(THYROID) Myxedema and pregnancy (Myxoedéme et grossesse). Le Troadec (L.), Thèse de Toulouse, 1921; abst., Rev. franç. de gynéc. et d'obst. (Par.), 1923, **18**, 63 (Jan.).

The author concludes that at times pregnancy in a myxedematous patient may cause disappearance or at least improvement of the myxedematous symptoms.—E. N.

(ENDOCRINE) An anatomical study contrasting the dementia precox constitution with that of paranoid developments. Lewis (N. D. C.), South. M. J. (Birmingham), 1923, **16**, 327-330.

A brief digest of the author's forthcoming monograph. In addition to changes in other systems he finds the following alterations in the ductless glands. In dementia precox there was (1) regressive atrophy of the **gonads**, (2) atrophy of the **adrenal cortex**, and (3) endosclerosis and loss of colloid in the **thyroid**. In the paranoid cases the changes were (1) in the **gonads**, atrophy with areas of hyperplasia; (2) in the **adrenal**, widened cortex with hyperplastic areas; (3) in the **thyroid**, atrophy with areas of compensatory hyperplasia.—J. C. D.

Hyperesthesia of the THYROID region. Lian (C.), Bull. Soc. méd. d. hôp. (Par.), 1923, **47**, 36-43.

Lian reports his further experiences with the sign described by him in 1918. It is necessary to avoid all suggestion, and to estimate the extent of hyperesthesia by merely observing the face of the patient. The point of a pin is drawn along the skin of the neck, very lightly pricking the skin. He does this on suspicion of exophthalmic goiter before he mentions the thyroid or attracts attention to it. This sign is not found very frequently, but it is reliable if it is distinctly present over the thyroid as a whole or over the isthmus or one lobe. It may be a special form of what Mackenzie calls viscerosensory reflexes.—J. Am. M. Ass., **80**, 963.

The effect of THYROIDECTOMY on the intelligence of sheep. Liddell (H. S.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1922, **19**, 423-425.

Twins were tested in a maze. The brighter twin was then operated upon, the other remaining as a control. It was found that cretinized sheep were inferior to the normal sheep, especially in learning a new maze.—J. C. D.

(THYROID) The influence of iodine on metabolism (Ueber den Einflusz des Iods auf den Stoffwechsel). Liebesny (P.), Wien. Klin. Wchnschr., 1923, **36**, 154-155.

Neisser, Löwy and Zondek have described splendid results obtained in Graves' disease with very small doses of iodine. The author studied the influence of iodine on normal metabolism. He proposes the following 3 groups: (1) those in whom 2 gm. KI daily has no influence; (2) those in whom 2 gm. KI daily produces a marked rise of metabolism, without changing the pulse rate and the body weight, and (3) those in whom KI tends to diminish metabolism; in this group especially, belong patients in whom metabolism normally is rather high. The author believes that iodine therapy may be tried in Graves' disease, but only in patients under clinical control.—J. K.

THYROID gland of man during embryonal and fetal periods (Gli organi a secrezione interna nel periodo embrionale e fetale, nell' uomo. 1. Ghiandola tiroide). Livini (F.), Arch. ital. di anat. e di embriol. (Firenze), 1922, **18** (suppl.), 522-547.

A study of the development of the thyroid gland in human fetuses from 9.1 mm. and up. The article is largely morphological. The abundant blood supply and the intimate relation of the blood vessels to the epithelial cells suggest early fetal functioning.

—A. T. R.

THYROID disease. MacLean (N. J.), Canad. M. Ass. J. (Toronto), 1922, **12**, 847-854 (December); cit., J. Am. M. Ass. (Chicago), 1923, **80**, 208.

The effect of partial and total extirpation of the THYROID and PARATHYROID glands upon blood enzymes (Die Fermentver-

änderung des Blutes bei vollkommener und teilweiser Entfernung des Thyreoideal- und Parathyreoidealapparates). Magath, Ztschr. f. d. ges. exper. Med. (Berl.), 1922, **29**, 264-272.

The thyroid gland regulates protein metabolism in the sense that its secretion acts as a kinase for those enzymes which are concerned in the synthesis and analysis of proteins. The parathyroids regulate sugar metabolism in the sense that they furnish a kinase for amylolytic enzymes. The thyroid secretion acts as a kinase for the catalase of the cell elements.

—Chem. Abst., **17**, 1048.

Case of acute exophthalmic GOITER treated successfully by use of roentgen ray. Magee (M. D'A.), Virginia M. Month. (Richmond), 1923, **50**, 37-39; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1834.

(THYROID) Progressive Muskeldystrophie und Thyreohypoplasie. Maiweg (H.), Ztschr. f. d. ges. Neurol. u. Psychiat. (Berl. u. Leipz.), 1921, **63**, 107-122; abst., Schweiz. med. Wchnschr. (Basel), 1922, **52**, 1238.

Description of a case of progressive muscular dystrophy (Erb) in a 6-year-old boy manifesting typical symptoms of marked thyroid deficiency. After 6 months' treatment with thyroidin marked improvement of both disorders was seen.—R. G. H.

(THYROID) Tachycardia with high blood pressure (Weiteres über die Hochdrucktachykardie). Mannaberg (J.), Wien. Arch. f. inn. Med., 1923, **6**, 147-150.

In a previous article the author pointed out that tachycardia and hypertonia are often found together. He believed that this complication was of thyroid origin. To prove this he carried out basal metabolism determinations in 7 such subjects and found that all showed a very high basal metabolic rate.—J. K.

THYROID function. Marine (D.), Physiol. Reviews (Balt.), 1922, **2**, 521-551.

Marine reviews our present knowledge of the functions of the thyroid gland. He points out that the thyroid has been shown to develop from a single ventral tubular down-growth of pharyngeal endoderm. The so-called "lateral thyroid anlagen," formerly believed to form the lateral thyroid lobes, are accidental inclusions which later undergo atrophy. A review of the literature shows that the relation between the number of mitochondrial granules and the pharmacological activity of the gland is not generally accepted in view of the abundance of these granules in the thyroid in myxedema. Thyroid adenomata are believed to develop from cell rests which atrophy under normal conditions but which form adenomata under certain conditions calling for increased thyroid activity. Thyroidectomy in animals has resulted in an average maximum reduction in total metabolism of 35% to 40%, which figure

"corresponds closely to that observed in the severest forms of human cretinism and myxedema and may be designated as the myxedema level." A close interrelationship of suprarenal cortex and thyroid has been observed, and Marine believes that exophthalmic goiter is intimately involved with cortical exhaustion and epinephrin stimulation. The review includes a survey of our present knowledge of the bearing of iodine metabolism upon the physiology of the thyroid gland and of the interrelationship of the thyroid and the other glands of internal secretion. The paper is brief and the clinician will find it well worth the reading in detail.

—Am. J. M. Sc., **165**, 292.

(THYROID) Prevention and treatment of simple goiter. Marine (D.), Atlantic M. J. (Harrisburg), 1923, **26**, 437-443.

An interesting and valuable review of the author's previous work on the prevention and treatment of goiter, much of which has already appeared in abstract form in this journel. Marine states that for practical purposes goiter may be divided into two great groups:

I. Simple Goiter.....	Endemic Epidemic Sporadic "Colloid" "Cystic"
II. Exophthalmic Goiter...	Hyperthyroidism Toxic goiter Toxic adenoma, etc.

Despite an enormous literature on the subject and the fact that we know more about the thyroid than any other body tissue, we know almost nothing concerning the essential nature of exophthalmic goiter. This disease occurs spontaneously only in man, while simple goiter may occur in all animals possessing a thyroid. Again, exophthalmic goiter, unlike simple goiter, is never endemic. Simple goiter may occur in any part of the world, but is less common on the sea coasts. There are occasional reports of epidemics of goiter in both man and animals. The most common endemic goiter districts are the Himalaya Mountain region of Northern India, the Alps region in Europe, the Andes plateau, and, in North America, the Great Lakes Basin and the Cascade Mountain regions of Oregon, Washington and British Columbia. The immediate cause is a deficiency in the iodin store of the thyroid. There is experimental evidence in favor of a thyroid-suprarenal cortex interrelationship. The administration of 60 to 120 mgs. of iodin in any form twice a year is sufficient to prevent simple goiter in man. Any plan of prevention that controls thyroid growths during fetal life, adolescence, and pregnancy and lactation, would practically eliminate goiter. This is not merely a question of the cosmetic appearance of the individual, but one relating also to certain dis-

eases depending upon thyroid deficiency, namely, cretinism, mutism, and idiocy. Moreover, the prevention of goiter would mean the prevention of such terminal changes as adenomata, cystic goiter, and malignancy of the thyroid.—I. B.

Possible clinical significance of THYROID-SUPRARENAL cortex interrelationship. Marine (D.) & Baumann (E. J.), N. York State J. M. (N. Y.), 1922, **22**, 518-521 (November); cit., J. Am. M. Ass. (Chicago), 1922, **79**, 2192.

(THYROID) Graves' disease treated and cured by tartar-emetic (Syndrome basedowien traité et guéri par le tartre stibié). Martin (L.), Réunion méd.-chir. d. hop. de Lille, 1923, Feb. 19; abst., Presse méd. (Par.), 1923, **31**, 226.

A subject of 40 years with Graves' disease, who would not submit to the usual treatment, was given tartar-emetic in small doses for a period of 4 months. The cure was complete and has lasted now for nearly a year.—R. G. H.

The blood supply of the THYROID gland and its surgical significance. Mastin (E. V.), Surg., Gynec. & Obst. (Chicago), 1923, **35**, 69; abst., Med. Sc. (Lond.), 1923, **8**, 212.

The THYROID gland of amphibians at the time of metamorphosis (La glande thyroïde des amphibiens au moment de la métamorphose). Mayerowna (Z.), Compt. rend. Soc. de biol. (Par.), 1922, **87**, 1175-1176.

Histological description of the thyroid during different phases of metamorphosis in the tadpoles of various amphibians. The gland augments in volume considerably during metamorphosis and attains its maximum at the culminating moment of metamorphosis. —T. C. B.

(THYROID) Idiopathic myxedema in a man of 37 (Idiopathisches Myxödem bei einem 37 jahrigen Manne). Meyer-Bisch, München. med. Wchnschr., 1922, **69**, 1132.

A short note. Symptoms of myxedema began to develop when the patient was 14. Thyroid administration caused a loss of weight with an improvement of psychical functions.—J. K.

(THYROID) The treatment of goiter. McCoy (J. N.), Indianapolis M. J., 1922, **25**, 135-138.

(THYROID) Exophthalmic goiter. McGregor (J. K.), Canad. M. Ass. J. (Toronto), 1922, **12**, 860-863 (December); cit., J. Am. M. Ass. (Chicago), 1923, **80**, 208.

(THYROID) Goiter. McKechnie (R. E.), Canad. M. Ass. J. (Toronto), 1922, **12**, 854-858 (December); cit., J. Am. M. Ass. (Chicago), 1923, **80**, 208.

The basal metabolism in non-toxic goiter and in borderline THYROID cases, with particular reference to its bearing in differential diagnosis. Means (J. H.) & Burgess (H. W.), Arch. Int. Med. (Chicago), 1922, **30**, 507-516.

Patients with an outspoken clinical picture of hyperthyroidism invariably show increased metabolism, and those with definite clinical pictures of hypothyroidism invariably show decreased metabolism. Those with goiters, but no signs or symptoms of abnormal thyroid function, for the most part show normal metabolism. The majority of patients with atypical or incomplete clinical evidence of abnormal thyroid function show normal metabolism. By inference from the indirect evidence it is believed that in these borderline cases, provided that in the first place a true basal rate is secured, and, provided that certain well recognized causes for increased metabolism, such as fever, **acromegaly**, leukemia and severe anemia are excluded, the finding of an increased basal metabolic rate is strong presumptive evidence of hyperthyroidism. In a similar way, provided that such conditions as starvation, **hypopituitarism** and **hyposuprarenalism** are excluded, a low metabolic rate is strong presumptive evidence of hypothyroidism. To that extent, then, the metabolism test is distinctly useful in differential diagnosis. Like all other laboratory tests it should be interpreted with due regard to all other clinical and laboratory findings, and with due regard for its limitations and pitfalls. These conclusions resulted from a study of 2,049 rate determinations on 1,000 cases, distributed as follows: clinically thyrotoxic, 300 cases; clinically **myxedema** and **cretinism**, 32 cases; goiters clinically non-toxic, 102 cases; borderline cases in which hyperthyroidism was suspected, 290 cases; borderline cases in which hypothyroidism was suspected, 70 cases; other endocrine diseases, 41 cases; blood diseases (anemia, leukemia and polycythemia), 66 cases; miscellaneous non-endocrine diseases, 99 cases.—H. L.

The rickets-producing effect of dried THYROID. Mellanby (E.), J. Physiol. (Lond.), 1922, **57**, Proc. ii-iii.

Thyroid given by mouth has no antirachitic effect when added to a rickets-producing diet. Recent experiments show that when the diet is on the borderline, which may or may not cause slight rickets, the addition of thyroid increases the rachitic condition, although the potency of the thyroid in stimulating metabolism is evidenced by a smaller increase in weight in animals receiving it.

—T. C. B.

Chronic rheumatism from HYPOTHYROIDISM (Le rhumatisme chronique deformant par insufisance thyroïdienne. Etude clinique et thérapeutique). Ménard (P.), J. de méd. et chir. prat. (Par.), 1921, **92**, 134-145.

Abdominal-THYROID galvanization in treatment of syndrome of hyperthyroidism. Menard & Foubert, Arch. Radiol. & Electroth

(Lond.), 1922, No. 267, 143 (Oct.); cit., J. Am. M. Ass. (Chicago), 1922, **79**, 2116.

The recognition of mild HYPERTHYROIDISM. Miller (J. L.) & Raulston (B. O.), Tr. Ass. Am. Physicians (Phila.), 1922, **37**, 74-80.

Exophthalmos and goiter are not essential in the diagnosis of Graves' disease. The signs and symptoms of special import are tachycardia, tremor and nervousness. In every patient whose chief complaint is nervousness the possibility of hyperthyroidism should be borne in mind. We must be cautious not to overestimate the value of basal metabolism determinations as many cases of hyperthyroidism may present normal rates, and in a considerable number of instances an increased basal metabolism is due to psychic factors.—I. B.

Recognition and treatment of HYPOTHYROIDISM. Millet (J. A. P.) & Bowen (B. D.), N. York State J. M. (N. Y.), 1923, **23**, 94-104.

A study is presented by Millet and Bowen of 18 cases showing either (a) **myxedema**, (b) clinical hypothyroidism, or (c) certain symptoms suggestive of hypothyroidism, together with a decreased basal metabolic rate and clinical improvement under thyroid therapy. The thesis is put forward that it is very difficult to classify cases falling in this third group, and to distinguish the true hypothyroid case from the case with a decreased basal metabolic rate for which hypothyroidism is not primarily responsible. Some observations are recorded as to the behavior of patients in these three groups under the different forms of thyroid therapy. It is the authors' belief that the most satisfactory type of thyroid therapy is the intravenous administration of thyroxin, controlled, where possible, by repeated estimations of the basal metabolic rate; that, further, both thyroxin and desiccated thyroid are uncertainly absorbed when taken by mouth, although either will, in most instances, bring about the desired therapeutic effect; and, finally, that for general oral administration a good preparation of desiccated thyroid is as good as, or better than thyroxin.

—J. Am. M. Ass., **80**, 1177.

The value of basal metabolic studies in the differential diagnosis of conditions resembling HYPERTHYROIDISM. Presentation of four cases illustrating its value. Mohler (H. K.), Med. Clin. N. Am. (Phila.), 1923, **6**, 949-959.

A discussion of the value of basal metabolism determinations in the diagnosis of borderline cases, the symptomatology of which presents many features in common. The need is emphasized for careful clinical deductions in instances in which, on final analysis, goiter is a mere incident having no bearing on the symptomatology.

—I. B.

(THYROID) The neotenical character of myxedema (Uber den neotenischen Charakter des Myxödems). Moro (E.), Monatschr. f. Kinderh. (Leipz.), 1923, **25**, 481-485.

Neotenia is the condition in which infantile characteristics remain in adults. Such symptoms in myxedema are milk teeth, retarded closing of the fontanelles, retarded ossification and persistent lanugo.—J. K.

(THYROID) Graves' disease with Jellineck's sign and pigmentation (Maladie de Basedow avec signe de Jellineck et pigmentation du type addisonien; opération; disparition progressive des signes de pigmentation). Mouriquand & Mazel, Soc. méd. d. hôp. de Lyon, 1922, Dec. 5; abst., Presse méd. (Par.), 1922, **30**, 1078.

In 1921 the authors presented the case of a subject with Graves' disease who had, along with a state of marked malnutrition and loss of weight (10 kg. in 6 months), a very characteristic Jellineck's sign and Addisonian disturbances, especially jugal pigmentation. Although opotherapeutic treatment failed, enucleation of the parenchymatous nucleus of the thyroid improved the condition in general. The patient gained 13 kg. in weight; the symptoms of exophthalmic goiter were less marked; Jellineck's sign was considerably decreased; the pigmentation of the buccal mucosa had completely disappeared on the right; on the left, one small pale spot was slightly visible. The authors attribute these results to metabolic changes. They emphasize especially the effect on the pigmentation of the skin and the mucous membrane. If attenuation of Jellineck's sign ("thyroid sign") is easily accomplished by thyroid therapy, as has already been noted in the course of recovery in a subject with Graves' disease, the disappearance of the jugal pigmentation ("adrenal sign") deserves especial attention because it has never before been reported.—R. G. H.

Blindness in a case of HYPOTHYROIDISM. Improvement on treatment with glandothyrine (Cécité par double névrite optique chez une malade atteinte d'hypothyroïdisme. Amélioration remarquable obtenue par la glandothyrine). Mussio-Fournier (J. C.), Ann. d'oculistique (Par.), 1918, **156**, 265-271; see also, Semana méd. (Buenos Aires), 1919, **26**, 139-155.

See Endocrinology, **2**, 526.—F. S. H.

The tadpole reaction of the THYROID. Naito (K.), Rikugun Juidempo, 1922, No. 152 (March); cit., Jap. Med. World (Tokyo), 1922, **2**, 274.

The relation of THYROID function to the blood pressure and the pulse. Nishikiro (S.), Nihon Naikagakukai Zasshi (Tokyo), 1922, **10**, 794-815.

Extracts of men's, cows' and rabbits' thyroids, prepared by

the author, were injected into the veins of rabbits, and the changes in the blood pressure were observed. In almost all cases the blood pressure was lowered, thereby causing a Pawlow's "Aktionspuls." Tachycardia or increased blood pressure was never found. Previous vagotomy slightly restrained the action of the thyroid extract on the blood pressure, and the "Aktionspuls" ceased to appear. The same was also found after an injection of atropin. Vagotomy carried out after an injection of thyroid extract caused an increase of the blood pressure, which was usually not the case in normal animals. Removal of the sympathetic nerves to the heart, the depressor nerve or ligature of the carotids and abdominal vessels, had no influence on the action of the thyroid extract. Thyroid extract seems to increase the action of adrenalin on blood pressure.—S. K.

(THYROID) Adenomatous goiter. Noecker (C. B.), Atlantic M. J. (Harrisburg), 1923, **26**, 434-435.

Report of a case of adenomatous goiter in a woman of 50. Subtotal thyroidectomy is advocated.—I. B.

(THYROID) Colloid goiter. Noone (M. J.), Atlantic M. J. (Harrisburg), 1923, **26**, 436-437.

A brief discussion of the etiology, prophylaxis and treatment of colloid goiter in which nothing new is stated.—I. B.

How does the THYROID act upon the urinary excretion of substances subcutaneously injected? Okano (Y.), Nihon Naikagakukai Zasshi (Tokyo), 1923, **10**, 923-948.

If the thyroid, as Eppinger believed, provokes diuresis resulting from some alterations of the metabolism of the salts and water, it is conceivable that the thyroid may also influence the excretion (in the urine) of phenolsulphonephthalein or potassium iodid, subcutaneously injected. In order to solve this problem, the author carried out experiments on rabbits according to Eppinger's method. He examined the same rabbits to see if some variations in the rate of excretion of these substances occurred after removal of the thyroid or during thyroid feeding. On rabbits, fed on thyroid, the rate of excretion was increased. The removal of the thyroids acted in the diametrically opposite direction, although just after the operation the results were inconstant. Sometimes reverse results were found for 2-14 days after the operation, but the phenomena, owing to the decreased function of the thyroid, appeared and became more evident with time.—S. K.

The relation of the THYROID to the osmotic resistance of the red blood corpuscles. Oku (I.), Nihon Naikagakukai Zasshi (Tokyo), 1922, **10**, 784-793.

The osmotic resistance and the hemoglobin content of the red blood corpuscles were examined in patients with Basedow's disease

or simple goitre. The same examination was also carried out on rabbits fed on thyroid and on rabbits after removal of the thyroid. The average value of the highest osmotic resistance and of the hemoglobin content was increased in Basedow's disease and in rabbits fed with thyroid. These results were explained by the author as due to the appearance of many newly formed red blood corpuscles in the blood stream, owing to the stimulation of the bone marrow which was probably caused by an increased function of the thyroid. In patients with simple goitre and in rabbits after removal of the thyroid, the osmotic resistance was normal, and the hemoglobin content was decreased.—S. K.

The function of the THYROID in hypoleucemia (La funzione tiroidea nella leucoanemia). Pace (L.), Rassegna internaz. di clin. e. terap. (Napoli), 1922, **3**, 521-532.

Intrafollicular hemorrhages, basophile red cells and hyperchromophile colloid of the THYROID body (Recherches expérimentales sur les hémorragies intrafolliculaires les hématies basophiles et la colloïde hyperchromophile du corps thyroïde). Parhon (C. I.) & Dérévici (M.), Compt. rend. Soc. de biol. (Par.), 1923, **88**, 950-951.

Amount of water in the tissues of normal and THYROIDECTOMIZED sheep (Sur le teneur en eau des tissus chez les moutons normaux et thyroïdectomisés). Parhon (Marie), Bull. Ass. d. psychiat. Roumains, 1922, **4**, 1-4.

Analysis of blood, liver, muscles, kidneys and brain of 3 normal and 3 sheep thyroidectomized six months previously indicated that in hypothyroidism the tissues contain more than a normal amount of water.—R. G. H.

Surgery of GOITER. Pauchet (V.), Bull. méd. (Par.), 1923, **37**, 427-430; cit., J. Am. Ass. (Chicago), 1923, **80**, 1814.

(THYROID) Treatment of goiter (Behandlung des Kropfes). Payr, Klin. Wchnschr. (Berl.), 1922, **1**, 1862.

The author obtained good results from internal treatment of goiter. He recommends the use of protylin, but warns against internal as well as external application of iodine. Lymphocytosis is an important symptom of hyperthyroidism.—J. K.

GOITER prophylaxis (Behandlung des Kropfes). Payr, Deutsche med. Wchnschr. (Berl.), 1922, **48**, 1567.

There is a distinction between goiter as it is seen most frequently in Switzerland (struma nodosa) and the type of goiter most frequent in Northern Germany (struma parenchymatosa). The Swiss goiter usually produces hypothyreosis, the German form, hyperthyroidism. Internal treatment is advocated in the menstruation-goiter, in thyroiditis as seen after acute infectious diseases and

in hemorrhages into the parenchyma of the goiter. Operation is advocated in all cases in which the near-by organs are in any way affected. Treatment with iodine is advised only in hyperthyroidism. In hyperthyroid forms sodium phosphate often gives good results. —J. K.

(THYROID) The surgical management of toxic goiters. Pemberton (J. de J.), Boston M. & S. J., 1922, **186**, 244-254; see also, Chicago M. Rec., **44**, 131-138.

An account of the methods and results obtained at the Mayo Clinic. The diagnostic and operative side of the question are dealt with.—J. C. D.

(THYROID) An epithelioma showing intercellular bridges and epithelial pearls arising in a goiter (Sur un épithélioma à cellules à ponts et à globes cornés dévelopé dans un goitre). Pettit (M. A.), Bull. Acad. de méd. (Par.), 1923, 3 S., **87**, 654-656.

A case report with emphasis on the pathology and origin of the neoplasm.—J. C. D.

(THYROID) The prophylaxia of endemic cretinism (Per la profilassi della endemia gozzo-cretinica). Pighini (G.), Difesa Sociale (Roma), 1923, **2**, No. 1 (Jan.).

In the treatment of simple hypertrophy of the thyroid gland good results were obtained by the administration of iodine preparations, but in patients suffering with a severe thyroid dystrophy, Pighini was able to obtain only a partial improvement. On the contrary, good results were obtained in the treatment of goitre in subjects who drank water over a long period which had previously been boiled. The waters of countries in which endemic goitre exists have been found to be rich in carbonate salts, which are precipitated by boiling. In Talada the author noticed that the inhabitants of the country were affected with goitre. This disappeared when the inhabitants were supplied with a pure water coming from calcareous eocenic rocks. According to the author, then, the cause of goitre exists in the water. The author urges that the Italian government study carefully the problem of endemic goitre prophylaxis.—A. C. M.

(THYROID) Graves' disease produced by iodine administration during the menopause (Uber Iod-Basedow im Klimakterium). Pineles (F.), Wien. med. Wchnschr., 1923, **73**, 83-86.

The menopause is caused by loss of the endocrine function of the ovaries and by changes in other endocrine functions. It is widely believed that in this period the thyroid has an increased sensitiveness for iodine. Therefore, care in using this drug is necessary. The author describes 2 cases of simple goiter in which iodine treatment did not cause the goiter to disappear but, on the contrary, caused Graves' disease to develop. Not all women taking

iodine during the menopause, even when a goiter is present, will develop Graves' disease, but there is probably a certain predisposition to do so, due to psychical weakness or a certain liability of the involuntary nervous system.—J. K.

Results of administering iodin to patients having exophthalmic GOITER. Plummer (H. S.), Tr. Ass. Am. Physicians (Phila.), 1923, May 1-2.

It has been taught that iodin should not be administered to patients with exophthalmic goiter, on the ground that it causes hyperfunction. There are two entities included in the term hyperthyroidism: first, exophthalmic goiter; second, hyperfunctioning adenomatous goiter. In the latter, the basal metabolism is more nearly normal. In exophthalmic goiter there are certain symptoms: (1) nervous phenomena, (2) eye symptoms. The first include purposeful but useless movements. The higher psychic processes are chaotic. The patients cannot explain why they cry or laugh. In the vegetative nervous system there is the same process of imbalance. These signs have given rise to such terms as "sympathotonic" or "vagotonic" goiter. These symptoms seem to be due to underlying metabolic disturbances. Often, after slight operations, the temperature rises and death occurs in a few hours. We judge the differential diagnosis by the nervous phenomena, which, if excessive, point to a great surgical risk. The eye phenomena are two: the exophthalmos, or protrusion of the eyeball, and the stare which fluctuates with the nervous phenomena. Anything that will overstimulate the thyroid can give the clinical picture of exophthalmic goiter. In such cases, the normal hormone, thyroxin, is not completely iodized. This incompletely built up thyroxin, as it leaves the gland, can enter into catabolic reaction faster than the normal, stable molecule and raise the metabolic rate more rapidly. If, therefore, we can change the character of the molecule, we can change the basal metabolism. If there is intense metabolic stress for lack of iodin, death occurs from lack of iodin. From this it follows that if we can change the production of abnormal substance to properly iodized substance we can cut down post-operative mortality, avoid crises, and change the picture of the nervous phenomena. Acting on this plan, we administered 10 drops of compound solution of iodin for 10 days following operation, with the result that we have found there is no such thing as post-operative deaths from hyperthyroidism if this dosage has been administered to the patient with regularity. In other words, the patient is relatively short of iodin, and dies from lack of it. When we replace the iodin, we do away with post-operative deaths.

—J. Am. M. Ass., 80, 1955.

(THYROID) Goiters and their action on the blood (Zur pathologischen Physiologie der verschiedenen Kropfarten und ihrer Ein-

wirkung auf das biologische Verhalten des Blutes). de Quervain (F.), Schweiz. med. Wchnschr. (Basel), 1923, **53**, 10-14.

De Quervain with Hara and Branovacky, experimented on rats with the serum and thyroid tissue from 119 different cases of goiter. He used the Asher-Streuli-Duran test of the sensitiveness of hyperthyroid rats to lack of oxygen. Normal serum and the serum of cretins had no influence (in some cases the latter increased the resistance), while exophthalmic goiter acted very strongly. The thyroid acted in a similar way, and it was interesting to note that even the thyroid from cretins was not without influence. Serum from cretins to a certain extent neutralized exophthalmic goiter serum. De Quervain believes that the thyroid secretes several substances. These tests seem to prove the presence of one of them in the serum of patients.

—J. Am. M. Ass., **80**, 881.

Morphology of the THYROID-THYMUS complex in the late fetal period. Histology of the thyroid and development of the arteries in the thyroid (Weitere Beiträge zur Entwicklungsgeschichte der Derivate des Kiemendarmes beim Meerschweinchen. I. Morphologie des Thyreo-thymischen Organkomplexes in der späteren Fötalperiode. II. Die Histogenese der Schilddrüse. III. Die Entwicklung der Arterien der Schilddrüse). Rabl (H.), Arch. f. mikr. Anat. (Bonn), 1922, **96**, 210-314; abst., Ber. u. d. ges. Physiol. (Berl.), 1923, **17**, 302.

(THYROID) Struma congenita permagna calculosa. Rauch, Deutsche med. Wchnschr. (Berl.), 1923, **49**, 533.

The patient was a man of 20. At birth he had a tumor on both sides of the neck, the right tumor being hard, the left soft. During his life the tumor became very large and as hard as a bone.

—J. K.

Cholesterol: Its occurrence in two THYROID cysts: A modification of Salkowski's test. Read (B. E.) & Meleney (F. L.), China M. J. (Shanghai), 1923, **37**, 236-238.

(THYROID) Clinical value of the Goetsch test. Read (J. M.) & Hiatt (R. S.), Med. Clin. N. Am. (Phila.), 1923, **6**, 1527-1535.

A criticism of the epinephrin hypersensitiveness test for thyroid hyperfunction in which are included the deductions of other observers and the writers' opinions based upon tests on 59 patients with thyroid and other disorders. The authors find that this test, when positive, indicates hypersensitiveness of the sympathetic nervous sustem, not necessarily hyperthyroidism. Subjects of exophthalmic goiter may exhibit no hypersensitiveness to adrenalin, while frankly outspoken instances of hypothyroidism occasionally present a positive adrenalin test. Moreover, the extreme frequency with which a positive Goetsch test is encountered in cases of chronic

focal infection, menopause, and miscellaneous conditions remotely or not at all related to thyroid hyperfunction renders this diagnostic procedure the subject of a conflict of opinion "with theories of pathogenesis, not with the facts of direct observation."—I. B.

Case of lymphosarcoma of the tonsils, THYROID and TESTES (Lymphosarcome de l'amygdale, du corps thyroïde et des deux testicules). Rocher (H. L.) & Lasserre (C.), J. de méd. de Bordeaux, 1923, **95**, 154-156.

THYROIDECTOMY: A modified technic. Roeder (C. A.), J. Am. M. Ass. (Chicago), 1922, **79**, 2066-2068.

The surgical neuroses of the THYROID gland. Rogers (J.), Am. J. M. Sc. (Phila.), 1923, **165**, 66-80.

The author concludes from a critical survey of available data that hypo- and hyper-thyroid conditions are interchangeable and are manifested by neuroses chiefly of the autonomic group of nerves. The hyperthyroid neuroses do not represent a primary and vicious overactivity of the gland, but seem to develop secondarily from some preceding deficiency in the biochemistry either of the involuntary nervous system or of the thyroid. The hyperthyroid symptoms are traceable to certain "hyperplastic" alveoli in the gland. When all, or the greater part, of these alveoli can be excised the symptoms quickly subside to those of the initial and underlying hypothyroidism. If the hyperplastic alveoli are scattered diffusely and evenly throughout the entire "goiter" the safest and best surgical treatment is to ligate first the two inferior thyroid arteries and later the superior vessels. The convalescence after any surgical intervention may require weeks or months of treatment with adrenal feeding and iodin to support the "check" upon the thyroid, or with thyroid feeding in the form of some "non-toxic" thyroid derivative to correct the primary hypothyroidism and to prevent its relapse into the secondary "hyper" disturbance.
—R. G. H.

THYROID disease. Roope (A. C.), J. Indiana M. Ass. (Ft. Wayne), 1923, **16**, 125-129; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1731.

HYPERTHYROIDISM with marked toxic symptoms due to congenital lues. Improvement with anti-luetic therapy. Rost (W.), Arch. Pediat. (N. Y.), 1922, **39**, 458-461.

Case report.—M. B. G.

(THYROID) Trophic edema of the legs in large projecting areas accompanying a case of exophthalmic goiter (Tropheodème des jambes en vastes placards saillants et symétriques dans un cas de goitre exophtalmique). v. Sabrazes, Bull. Soc. franç. de dermat. et syph. (Par.), 1921, **28**, 263-267; abst., Schweiz. med. Wchnschr. (Basel), 1922, **52**, 596.

A case report of a 25-year-old girl who had had symptoms of exophthalmic goiter for the last 8 years. Three years before the report was written, after a temporary, itching, reddening condition of both legs, there developed symmetrical, painless, non-itching, sharply bounded, ashen hued, projecting solid patches, 0.5-2 cm. in size, with a smooth and here and there lightly lichen infected epidermis. This, in the present state of our knowledge, must be considered as trophic edema.—R. G. H.

(THYROID) Treatment of exophthalmic goiter (Les traitements actuels du goitre exophtalmique). Sainton (P.), Vie méd. (Par.), 1921, **2**, 1279-1282.

Relation between the THYROID and hemolysin. Sawano (T.), Chugwai Iji-Shimpo, 1922, No. 1018 (August); abst., Jap. Med. World, **2**, 347.

The serum of the rabbit whose thyroid has been enucleated has an increased hemolytic effect on goat's erythocytes. This is due to increased hemolysin. This quantitative change of the normal hemolysin can be prevented by feeding with cattle thyroid preparation, but the feeding of the normal rabbit with the same does not give any enhanced hemolysin. Moreover, when there develops intoxication phenomena from the feeding, the hemolysin contents have been found decreased. The raw cattle thyroid extracts enhance the hemolysin contents of the normal rabbit. The influence of thyroid extirpation upon the hemolysin content is not always constant and the extirpation of the organ in the immunized rabbit does not influence the immune hemolysin contents.—R. G. H.

(THYROID) Struma maligna. Schädel, Berl. klin. Wchnschr., 1921, **58**, 1446; see also, München. med. Wchnschr., 1922, **69**, 1282, 1285. See Endocrin., **6**, 362.

(THYROID) Peculiar murmurs in the carotid arteries (Auffällige Gefäszgerausche an den Karotiden). Schipper (R.), Wien. klin. Wchnschr., 1923, **36**, 352.

A report of 3 cases, 2 of which are of endocrine interest. A case of hyperthyroidism was noted with a strong systolic-diastolic murmur, reaching its maximum intensity at the bifurcation of the internal and external carotid arteries. A patient with Graves' disease with murmurs in all the vessels was observed; the pulse could be ausculated.—J. K.

Difficult GOITER operations (Schwierige Kropfoperationen). Schloffer, Med. Klin. (Berl.), 1923, **19**, 446.

THYROID extirpation in tadpoles (Ueber Schilddrüsenexstirpation bei Froschlarven). Schulze (W.), München. med. Wchnschr., 1922, **69**, 1133.

See Endocrin., **7**, 515.

(THYROID) Myxedema following treatment of Graves' disease with Roentgen ray. Seymour (M.), Boston M. & S. J., 1921, **185**, 261.

Two brief case reports.—J. C. D.

(THYROID) Exophthalmic goiter. Sheridan (L. A.), Atlantic M. J. (Harrisburg), 1923, **26**, 435-436.

Report of a case of Graves' disease in a female of 19. Operation is advised.—I. B.

The THYROID glands of criminals sentenced to death. Shibata (I.), Kenyokwai Zasshi, 1922, No. 160 (Oct.); cit., Jap. Med. World (Tokyo), 1923, **3**, 33.

(THYROID) Physiologic tests in the insane (Las pruebas farmacodinámicas en psiquiatría). Sierra (A. M.), Semana méd. (Buenos Aires), 1923, **30**, 31-33.

Sierra reports the findings in 100 insane persons tested with the Löwi, Goetsch, Woodbury and Asoli drug tests and the Sergent and Marañon physical tests. No regular connection could be discovered between them and the mental disease. His findings demonstrate, however, that the Goetsch **epinephrin** test is not specific for hyperthyroidism.—J. Am. M. Ass., **80**, 967.

(THYROID) Present status of treatment of exophthalmic goiter. Singer (K.), Med. Klin. (Berl.), 1922, **18**, 1228-1229 (September 17); cit., J. Am. M. Ass. (Chicago), 1922, **79**, 2200.

(THYROID) The indications for surgical treatment in the different types of goiter. Sistrunk (W. E.), Surg. Gynec. & Obst. (Chicago), 1921, **33**, 348-352 (Oct.).

Sistrunk follows Plummer's subdivision of goiters into 3 classes: colloid, adenomatous, and exophthalmic. Colloid goiters occur in young persons, are not surgical, and respond to treatment with iodine and thyroxin. The adenomatous variety, which usually appears in young persons, show hyperthyroid symptoms in 23% of the cases. In young persons, unless the goiters produce pressure symptoms or are of considerable size, surgery is not indicated, but in patients who have reached the age of 25 or 30, surgery is advocated as a rule. All adenomatous goiters with hyperthyroidism are considered surgical if the condition of the patient will permit an operation. Exophthalmic goiters occur at any age, but most often between the ages of 20 and 40. The best treatment is surgical. Results are best when operation is performed before marked damage has been done to the vital organs. Often one or two ligations of the superior thyroid vessels, as a preliminary to thyroidectomy, make the latter safer. With proper care in the selection of the type of operation for the given case, the mortality is low.—E. N.

(THYROID) Nonthyrotoxic goiter. Slesinger (E. G.), Practitioner (Lond.), 1921, **107**, 355-366.

This is a brief review without new material.—J. C. D.

(THYROID) Relationship of goiter to chronic patient. Sloan (H. G.), Wisconsin M. J. (Milwaukee), 1922, **21**, 257-261 (December); cit., J. Am. M. Ass. (Chicago), 1923, **80**, 280.

Value of basal metabolism studies in THYROID disease. Smith (J. H.), Virginia M. Month. (Richmond), 1923, **49**, 708-711; cit., J. Am. M. Ass. (Chicago), 1923, **80**, 1178.

Effects of quinine therapy on the basal metabolism in the treatment of HYPERTHYROIDISM. Spencer (J. H.) & Lothian (N. V.), J. Roy. Army Med. Corps (Lond.), 1923, **41**, 46-47.

Administration of 40 grm. daily of quinine hydrochloride reduced the basal metabolic rate of a patient resting in bed from plus 25 to minus 14%. When out of bed his basal metabolic rate rose to minus 5%. The clinical condition was improved.—A. T. C.

(THYROID) Exophthalmic goiter; death from bilateral femoral thrombosis and gangrene. Spencer (W. G.), Brit. J. Surg. (Lond.), 1922, **9**, 568-569.

Not of endocrine interest.—J. C. D.

(THYROID) Lipodystrophia progressiva: A report of two cases, one of which showed improvement under medical treatment. Sprunt (T. P.), South. M. J. (Birmingham), 1923, **16**, 333-337.

Of endocrine interest because both subjects showed a thyroid derangement. One improved during administration of pituitary extract.—J. C. D.

(THYROID) Goiter problem—from the patient's standpoint. Starr (F. N. G.), Canad. M. Ass. J. (Toronto), 1922, **12**, 858-860 (December); cit., J. Am. M. Ass. (Chicago), 1923, **80**, 208.

(THYROID) Goiter statistics. Stoss (M.), Deutsche Ztschr. f. Chir. (Leipz.), 1922, **176**, 325-342.

Stoss analyzes 606 operative cases of goiter at Munich. In men the goiter seems to be more of an ordinary tumor type, and the disturbanees are mainly mechanical, while in women the goiter seems to be more closely connected with the endocrine system, and thyrotoxic disturbances predominate.—J. Am. M. Ass., **80**, 1186.

Iodine treatment of THYROID diseases (Iodbehandlung der Schilddrüsenerkrankungen). Sudeck, Med. Klin. (Berl.), 1923, **19**, 449; see also, Deutsche med. Wchnschr. (Berl.), 1923, **49**, 538.

The administration of iodine in diseases of the thyroid should be considered as specific treatment. Iodine may be used in an organic or inorganic form. Iodostarin, the author states, is an or-

ganic preparation containing the hormone and can therefore take the place of the gland. This is especially useful when in severe forms the thyroid has to be completely extirpated. The body normally takes as much iodine as it needs and the rest is excreted. People in the south of Germany or in Switzerland are very sensitive to iodine. Iodine has been recently recommended in Graves' disease when given in very small quantities. The author considers this treatment as a very serious mistake. Inorganic iodine is useful only in patients in whom some active thyroid tissue is present.
—J. K.

(THYROID) The surgical treatment of goiter (Die chirurgische Behandlung des Morbus Basedowii). Sudeck (P.), Verhandl. d. deutsch. Gesellsch. f. Chir. (Berl.), 1921, **45**, 174-189; see also, Arch. f. klin. Chir. (Berl.), 1921, **116**, 648-663.

See Endocrin., **6**, 191.

Basal metabolism in THYROID disorders (Ueber Basalstoffwechseluntersuchungen bei Schilddrüsenerkrankungen).) Szenes (A.) & Bircher (F.), Schweiz. med. Wchnschr. (Basel), 1923, **53**, 263-266.

A brief review with illustrative cases.—R. G. H.

Metabolic studies in diseases of the THYROID (Stoffwechseluntersuchungen bei Schilddrüsenerkrankungen). Szenes & Bircher, Klin. Wchnschr. (Berl.), 1922, **1**, 2597.

A cytological study on the dog's THYROID gland. Takagi (K.), Folia anat. jap. (Tokyo), 1922, **1**, 69-100.

The author has employed the cytoplasmic granular stains. He differentiates between principal, colloid, and interfollicular epithelial cells. Secretion granules are derived from plastosomes in the principal cells.—W. J. A.

The effect of THYROIDECTOMY, controlled by respiratory exchange measurements, on antibody formation in rabbits. Také (N. M.), J. Infect. Dis. (Chicago), 1923, **32**, 138-143.

Thyroid insufficiency, determined by heat production measurements, does not inhibit or increase the hemolysin and agglutinin (typhoid) formation in rabbits.—Chem. Abst., **17**, 1062.

(THYROID) Basedow's disease. Takane (K.), Tokyo Igakkwai Zasshi, **36**, No. 2; abst., Jap. Med. World (Tokyo), 1922, **2**, 237.

Goetsch test and radiotherapy in THYROID disease. Tarnauceanu, J. de radiol. (Par.), 1922, **6**, 501-511.

Tarnauceanu extols the value of the Goetsch test in hyperthyroidism. He used 1 cc. instead of 0.5 cc. of the 1:1,000 epinephrin solution. In conclusion he states that, on account of the remark-

able results, this test should be adopted as a routine practice in radiology to sift out the cases suitable for radiotherapy.
—J. Am. M. Ass., **80**, 588.

HYPOTHYROIDISM with unusual skin manifestations; report of a case. Towle (H. P.) & Oliver (E. L.), Arch. Dermat. & Syph. (Chicago), 1922, N. S. **5**, 88-93.

Case history and a description of the treatment used.—J. C. D.

(THYROID) Serous and endocrine glands in Malta fever (Sierose e glandole endocrine nella febbre di Malta). Tozzi (R.), Med. prat. (Napoli), 1923, **8**, 1-11.

In 2 clinical and several experimental cases Malta fever produced serosites and interstitial thyroidites.—P. N.

On the function of the THYROID gland with special reference to the effect of variations of diet upon it. Part II. Tsuji (K.), Acta scholae med. univ. imp. (Kioto), 1922, **4**, 471-480.

Tsuji reports a continuation of previous experiments. He found that the thyroids of rats fed on a great amount of fresh egg yolk or fresh milk present hypertrophy and activity, which produce in turn hypertrophy of the submaxillary gland, parotid gland, pancreas, liver, testicles and ovaries. The histological feature of these organs is quite analogous to that produced by thyroid feeding. On the other hand, these organs in case of thyroidectomized animals show atrophy or degeneration, the features of which are quite analogous to those found in the instances of hypothyroidism produced by the deficiency diet feeding. From these data it is concluded that fresh egg yolk or fresh milk contains a substance or substances acting hormonically on the thyroid.—R. G. H.

(THYROID) Experimental and clinical studies on the etiology and treatment of exophthalmic goitre. Tsuji (K.), Acta scholae med. univ. imp. (Kioto), 1923, **5**, 329-337.

From 20 rats the entire left **adrenal** and ½-¾ of the right were removed, leaving, however, some cortical and some medullary tissue intact in each case. Eleven rats succumbed within one day; the remainder died or were sacrificed on the second to seventh days. The thyroids and **ovaries** were examined. Even in this space of time the thyroid gland showed changes approaching the exophthalmic type and the ovaries showed some degree of degeneration.
—R. G. H.

The relation between THYROID function and the calcium content of organs. Uchida (R.), Nihon Naikagakukai Zasshi (Tokyo), 1923, **10**, 1024-1042.

The calcium content of blood, heart, bone, liver, and kidney was determined chemically either in thyroidectomized or thyroid fed rabbits. Comparing the results with those obtained in normal rabbits, the author concludes that with hyperfunction of the thyroid

the calcium content increased in the blood, and decreased in the other three organs. The same is also found for about 5 days following thyroidectomy, while the results are quite the reverse with hypofunction.—S. K.

(THYROID) Congenital myxedema. Ugón (A. A.), Arch. latino-am. pediat. (Buenos Aires), 1922, **16**, 524-528.

The child's condition improved somewhat under thyroid treatment begun when it was 11 months old. The mother, aged 38, had a goiter of 22 years' standing, and of late years had presented symptoms of hyperthyroidism.—J. Am. M. Ass., **80**, 144.

The elaboration and release of the colloid of the THYROID. Uhlenhuth (E.), Proc. Soc. Exper. Biol. & Med. (N. Y.), 1923, **20**, 494-496.

The salamander, Amblystoma opacum, was used. The author followed the histology of the thyroid gland throughout the life of the animal. He noted particularly that the colloid accumulates during the larval period and is discharged rapidly at the start of metamorphosis. It accumulates again in old age. He concludes from his observations and experiments in feeding iodine, that "colloid elaboration and colloid release are within certain limits independent of one another."—J. C. D.

A case of THYROIDITIS following parturition (Un cas d' inflammation du corps thyroïde dans les suites de couches). Vallois & Roume, Reunion Obst. et Gynéc. de Montpellier, 1922 (July); abst., Rev. franç. de gynéc. et d'obst. (Par.), 1923, **18**, 57 (Jan.).

A case is reported of thyroiditis developing in a primipara of 26 on the fifteenth day after parturition. There had been a slight goiter, which became intensely inflamed, with both local and general signs. Resolution occurred, without suppuration, leaving only a slight enlargement of the thyroid.—E. N.

THYROID disorders and gestation (Maladies du corps thyroïde et gestation). Vignes (H.), J. Praticiens, 1922, 660-670 (Oct. 14); abst., Rev. franç. de gynéc. et d'obst. (Par.), 1923, **18**, 101-102.

Pregnancy may improve or aggravate the symptoms of thyroid deficiency. Hypothyroidism may become a cause of vomiting, albuminuria, tetany, or even eclampsia. In general, slight insufficiency is improved; that of moderate degree is aggravated by pregnancy. The same variable effect of pregnancy is seen in the case of hyperthyroidism.—E. N.

(THYROID) A report of 150 cases of mongolian idiocy. Von Hofe (F. H.), Arch. Pediat. (N. Y.), 1922, **39**, 737.

Treatment and prophylaxis of GOITER (Zur Therapie und Prophylaxe des Kropfes). Wagner-Jauregg (J.), Wien. klin. Wchnschr., 1923, **36**, 139-142.

A discussion of the literature and a recommendation of the use of NaCl to which a trace of KI is added.—J. K.

(THYROID) Basedow's disease. Watanabe (S.), Nishin Igaku, 1922, **12**, No. 4 (Dec.); abst., Jap. Med. World (Tokyo), 1923, **3**, 62.

The author supports the thyroid function derangement theory but considers that the exophthalmos is of secondary importance. Thyroidectomy means the destruction of the interrelation between the primary cause, exophthalmos, internal secretion and the vegetative nervous system, while the strains of the vegetative nervous system are only accessory phenomena.—R. G. B.

Influence of radiation of the THYROID on carbohydrate metabolism. Tanemura (H.) & Watanabe (K.), Aichi Igakkwai Zasshi, 1922, **29**, No. 3 (May); abst., Jap. Med World (Tokyo), 1922, **2**, 265.

In normal rabbits and those with goitre, radiation caused transitory hyperglycemia, but it had no such effect on normal human subjects before or after taking thyroid extract.—R. G. B.

(THYROID) Discussion on dental sepsis as an etiological factor in disease of other organs. Willcox (W.), Proc. Roy. Soc. Med. (Lond.), 1923, **16**, 16 (Sec. Odontology).

Streptococcal toxemia may result in the clinical picture of hyperthyroidism. The author has observed the disappearance of hyperthyroidism following the removal of infected tonsils in one instance, and the removal of dental sepsis in 4 others.—I. B.

(THYROID) Types of goiter and their treatment. Wilson (J. M.), Am. J. Surg. (N. Y.), 1922, **36**, 141-143.

A short discussion with case reports.—J. C. D.

Pathology of nodular (adenomatous?) goiters in patients with and those without HYPERTHYROIDISM. Wilson (L. B.), Tr. Ass. Am. Physicians (Phila.), 1922, **37**, 68-73.

The parenchymal changes in the thyroid in true exophthalmic goiter is almost always diffuse, and therefore the gland is rarely nodular in appearance; "toxic adenoma," "toxic nonhyperplastic goiter," or "hyperfunctioning adenoma" is often associated with a nodular thyroid growth. In this study of about 500 thyroids the specimens were taken from two groups: (a) patients with enlarged nodular thyroids with symptoms of hyperthyroidism but without exophthalmos and without the nervous syndrome peculiar to exophthalmic goiter, but presenting a basal metabolism of plus 20 or more; and (b) patients of approximately the same age with enlarged nodular thyroids, without symptoms of hyperthyroidism and with basal metabolic rates within normal limits. In 90% of thyroids from group (a) there were distinct evidences of increased activity of the parenchymal cells, and in many instances there was

considerable parenchymal cell hyperplasia. These changes differ from those seen in the hyperplastic thyroid of exophthalmic goiter in that in most of the thyroids of the former there has been marked colloid storage in the follicles, which now is taken up by the parenchymal cells and passed into the circulation. Also, there were to be seen the peculiar picture of a mixture of hyperplastic and atrophic cells lining different parts of the same colloid-containing follicle. There were also areas of very marked formation of new follicles at times containing dense stored colloid in the encapsulated adenomas, or containing none in the nonencapsulated variety. About 95% of the thyroids examined from group (b) presented no areas of cell hypertrophy or hyperplasia; the parenchymal cells in follicles of adult type were uniformly flattened or atrophic.—I. B.

Pathologic classification of lesions of the THYROID gland. Wilson (L. B.), Ann. Clin. Med. (Balt.), 1922, **1**, 44-51.

A brief discussion of embryonic tissue in the thyroid, vascular changes in goiters, inflammation, hypertrophy, hyperplasia, adenomatosis, regeneration, colloid, storage, etc. Nodular thyroids due to interlobular fibrosis are often misdiagnosed as adenomas. An interesting table classifying goiters is included.—E. C. A.

Heart in exophthalmic goiter and in adenomatous goiter with HYPERTHYROIDISM. Wilson (L. B.), Boothby (W. M.) & Williams (F. A.), Tr. Ass. Am. Physicians (Phila.), 1923, May, 1-2.

In exophthalmic goiter the heart work is so increased that the patient, lying in bed, needs four and five thousand calories a day. There is increased systolic blood pressure and slightly decreased diastolic pressure. In adenomatous goiter with hyperthyroidism, there is increase in both systolic and diastolic pressure. Cardiac murmurs occur in half the cases. Murmurs are of two kinds, the systolic blowing murmur, associated with changes in blood flow, and a systolic blowing murmur, with maximum at the apex, due to mitral regurgitation and enlarged left ventricle. Few patients die of heart failure in this disease. One death in 23 cases was recorded as due to cardiac failure. Difficult breathing after operation is due to anoxemia resulting from injury to the laryngeal nerve. In some patients, auricular fibrillation develops from the stress of operation. Patients with emergency operations for other conditions have developed auricular fibrillation, owing to unsuspected thyroid conditions. In our cases, sinus auricular block occurred in 1 case; T-wave negativity in 3 cases; hypertrophy in 17 cases, and fibrosis in 2 cases. Eleven of the patients were over 45, and in these lipoid changes were more marked than in other women of the same age group. The conclusions were that pronounced changes are not so frequent in goiter as is generally supposed. When they do occur, they dominate the picture; but they can be relieved greatly by proper cardiac therapy.—J. Am. M. Ass. **80**, 1725.

Recurrent GOITER (Ueber Kropfrezidive). Wunderlich, München. med. Wchnschr., 1922, **69**, 1130.

Intertracheal GOITER (Ueber Struma intertrachealis). Wurster (E.), München. med. Wchnschr., 1922, **69**, 1382.

Report of an operation.—J. K.

Influence of small doses of THYROID on the red blood picture (Der Einflusz kleiner Thyreoidinmengen auf das rote Blutbild). Zondek (H.), Deutsche med. Wchnschr. (Berl.), 1922, **48**, 1033-1034.

A normal woman after a severe psychic shock rapidly developed a goiter and polycythemia (14,000,000 erythocytes, 8,000 leucocytes per mm. and 200% hemoglobin). Many members of her family suffered from thyroid diseases. X-ray treatment caused improvement. When the number of red corpuscles was 7,000,000, 0.1 gm. of thyroidin was given. Half an hour later 15,000,000 normal corpuscles were found per mm. without abnormal cells, such as normoblasts, etc. Two hours after the injection the number of blood cells was again 7,000,000. A temporary increase of blood cells and haemoglobin may be produced in normal persons also by 0.1 gm. of threoidin. This is not due to a loss of water, as is proved by refractometric examination of the blood. Larger doses of thyreoidin have no effect or may even cause a temporary decrease of the number of red cells. In two cases of myxedema the increase after ingestion of 0.1 gm. of thyreoidin was very marked. In aplastic anemia no reaction was seen.—J. K.

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